

**'It's Important to Know In Time'**

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The Newspaper of the Industry

# Air Conditioning & REFRIGERATION

Production Tools for Victory

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## 'Exchange' Plan On Repair Parts Is New Policy

Manufacturers Request Old Part Be Sent To the Factory

DETROIT—To aid in the nation's drive to salvage all available metal and to keep in line with the copper conservation orders, a number of manufacturers of refrigeration parts are putting into effect a policy of shipping parts, especially those made wholly or partially of copper, on a basis of an old part exchanged for each new one shipped.

One manufacturer has announced his policy on this matter as follows:

"By this time it must be known to everyone that the nation is very short of copper. Even the Army and Navy are substituting other materials for copper wherever possible. We civilians can do no less than save every ounce of copper we can and avoid its use wherever possible. Moreover, WPB orders M-9-a and M-9-c drastically restrict the sale and use of copper.

"In order to follow not only the letter, but also the spirit and intent of these orders we find it necessary to make some change in our policy in regard to supplying parts made wholly or partially of copper, such as bellows seals, bearings, bearing plates, condensers, bronze shut-off valves, and miscellaneous small switch parts, etc.

"Effective at once these parts will go on an exchange basis, rather than on outright sale. Thus, if you wish to obtain a bellows seal we must require that the old one be returned to us.

"This may be handled in either of the two following ways:

"1. When sending us your order for parts containing copper, send us the old part. We will then either repair or replace it at the usual prices. No allowances can be made for scrap value as our cost of disassembling the parts usually exceeds any scrap value.

"2. Enter your order in the usual manner. We will send you the part

(Concluded on Page 16, Column 1)

## Rationing of Power, When Necessary, To Hit Cooling Systems

NEW YORK CITY—The nation faces rationing of electricity for "non-essential" purposes next year with air conditioning and sign lighting power apparently in line to be the first to feel the curtailment axe in the War Production Board's proposed plan to assure an ample supply of electric power for war industries, J. A. Krug, chief of the WPB power branch, revealed at the recent annual power conference of the Edison Electric Institute held here.

Mr. Krug, formerly chief power planning engineer of the Tennessee Valley Authority, told the nation's leading utility executives that because the war production needs of the nation came first, non-essential users of electricity would find themselves curtailed under an over-all order on which the WPB is now working.

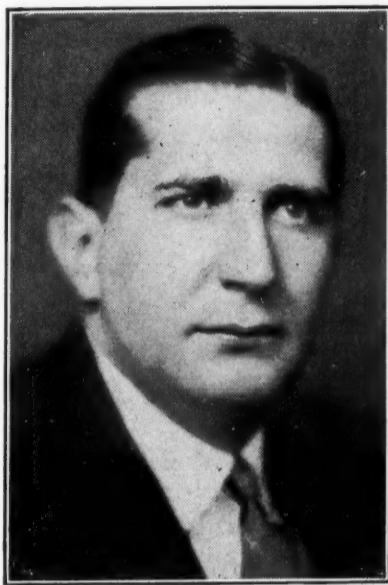
Should certain highly industrialized areas feel a power pinch as war production accelerates, it is probable, under the proposed WPB order, that air conditioning power loads will be considered non-essential and its use curtailed.

The country will be divided into

(Concluded on Page 16, Column 2)

## J. K. Knighton Is Appointed Director of Refrigeration 'Program for Victory'

Director



J. K. KNIGHTON

## New Order Limits Types of Steel for Use in Hand Tools

WASHINGTON, D. C.—The type of steel which may be used in producing hand service tools and the orders which producers of such tools may fill are now limited by General Preference Order E-6 issued Friday. Such tools as chisels, hammers, snips, pliers, punches, screw drivers, and wrenches may not be manufactured out of any alloy steel except those series specifically designated in an exhibit attached to the order.

Under the terms of Order E-6, no producer of hand service tools may fill any purchase orders except those rated A-10 or higher. This restriction applies only to sales by the producer, as distributors and retailers may continue to sell as before on unrated orders after they have filled all orders with ratings.

However, the new order provided that producers who have already received alloy steel of a series not listed prior to the issuance of the order are permitted to use it up.

## Carrier To Include Its Field Men In a New War Work Program

SYRACUSE, N. Y.—Cloud Wampler, executive vice president of Carrier Corp., has announced the formation of a Carrier War Products Committee to coordinate all sales, engineering, and manufacturing facilities and to help further the company's activities now devoted 98.5% to war production.

As part of the plan, the company conducted a week's training course for 40 engineers and construction superintendents called in from branch offices throughout the country. This training is intended to give field men an intimate knowledge of the local plant facilities.

Under the new plan, key men in the field will be enabled to give closer cooperation to Army, Navy, and war industries and to obtain complete utilization of Carrier facilities for the manufacture of war equipment other than air conditioning, refrigeration, and heating.

First of the training sessions opened under the chairmanship of E. T. Murphy, marketing vice president. Other speakers included Mr. Wampler, Donald French, vice presi-

(Concluded on Page 16, Column 3)

NEW YORK CITY — John K. Knighton of Evansville, Ind., has been named National Director of the Program for Victory of the Refrigeration Industry, it was announced last week-end by William Hainsworth, chairman of the Steering Committee.

"The major obligation of our industry is the conservation of vital materials needed for war by saving, simplification, and substitution in all phases of our work," Mr. Knighton declared upon accepting the appointment.

"Also we have an obligation to instruct our customers in the use of our products to conserve electricity, especially in major war production areas. A united industry can help to hasten our winning of the war. This is a job for every individual in the industry."

Mr. Knighton is a former chief special investigator for the department of industrial relations, State of Ohio; associate federal director of the United States Employment Service; regional manager for Frigidaire; manager of the air conditioning department, Nash-Kelvinator; and manager of the air conditioning division, Servel, Inc. He served in the Navy during the first World War.

His address will be: Victory Program, 119 North Morton St., Evansville, Ind.

Mr. Hainsworth also made the first public announcement of the members of the Victory Program Steering Committee, who are, in addition to himself as chairman:

H. T. McDermott (vice chairman), secretary of the Refrigeration Service Engineers Society; William B. Henderson, secretary of the Air Conditioning & Refrigerating Machinery Association; John Wyllie, president of the Refrigeration Equipment Manufacturers Association; Fred Hovey, secretary of the National Refrigeration Supply Jobbers Association; G. D. Allman, Association of Refrigerated Warehouses; and George Taubeneck, editor and publisher of AIR CONDITIONING & REFRIGERATION NEWS.

"Every man in the refrigeration industry—no matter what his particular job may be—must assume a two-fold obligation if he is to prove worthy of the coveted title of citizen," Mr. Knighton stated.

"The first of these obligations is similar to that of every other inhabitant of the U. S. A. and we should be proud of the opportunity to serve our country as the occasion demands.

"The second obligation is exclusively ours—we will do the job—or it won't be done. Our opportunities and rights as citizens of the U. S. A. have permitted us to build the refrigeration industry—serving every civilized inhabitant of the world whose mode of life and circumstances of living demand food preservation by refrigeration.

"And now, the products of our industry originally designed for air conditioning applications in industry, but which found greater opportunity for service in creating and maintaining comfortable atmospheric conditions for the occupants of any type or use of space, are again predominately used by Industry—War Industries. A use that is vital to the production of many of our most essential weapons of war.

"This particular obligation of ours—ours because we are the refrigeration industry—is CONSERVATION. A conservation of vital materials required for the production of implements of war by saving, simplification and substitution of these vital materials in all phases of our work—Design, production, application, installation, service, and maintenance.

"Your contribution may be large or small—but in the aggregate, our contribution will help win the war—will hasten the day when we can

(Concluded on Page 16, Column 1)

## Gen. Rommel Praises Refrigerated Tanks

NEW YORK CITY — Marshal Erwin Rommel, commander of the Axis forces in Libya, was quoted by press dispatches as giving credit for what success he has attained in recent desert fighting to refrigerated (air conditioned) tanks.

An Associated Press dispatch dated June 11, based upon information from German broadcasts, stated the following:

"DNB (German news agency) quoted well-informed circles as saying that Marshal Erwin Rommel's operations in Libya owe much of their 'extraordinary success' to refrigerated tanks.

"(Temperatures inside ordinary tanks in Libya have been reported as high as 120° F.)

"This new construction, using a type of gas refrigerator known all over the world and being coupled between the motor and the refrigerator," DNB said, "creates a cool interior for the tank even at the hottest outside temperature."

## OPA Plans Further Education on Proper Posting of Prices

NEW YORK CITY—The Office of Price Administration is planning a stepped-up educational campaign among local retailers on the regulations governing the posting of prices as a result of the recent survey in Philadelphia by a flying squadron of OPA investigators, which showed only 11.1% proper compliance, Sylvan L. Joseph, regional OPA administrator, revealed.

"It is obvious that retailers have not received adequate instruction," Mr. Joseph maintained. "In the great majority of instances, storekeepers who were not fully acquainted with the regulation were convinced after talking to investigators that the ceiling price system is of real value to them in store promotion."

Small neighborhood shops and small specialty stores appear to be less well informed as to the posting of requirements than the large store organizations, the Philadelphia survey indicated.

Of the 5,137 Philadelphia stores checked by OPA operatives, only 568 stores showed proper compliance. In 1,717 stores prices had been posted, but by methods which did not meet the regulation requirements. There

(Concluded on Page 16, Column 1)

## Deadline Set Back on Household Refrigerator Sales Records For WPB

WASHINGTON, D. C.—Because of a delay in the delivery of printed forms, Supplementary General Limitation Order L-5-d has been amended to postpone until July 3, 1942 the date on which reports must be submitted showing shipments of domestic mechanical refrigerators made between Feb. 14 and June 15 and stocks as of June 15. This is an extension from June 25, 1942.

Text of the amendment is as follows:

"Section 989.5 (Supplementary Limitation Order L-5-d) is hereby amended in the following particulars:

"Subparagraph (g) (1) is hereby amended by substituting 'on or before July 3, 1942' for 'on or before the tenth day after the effective date of this Order.'

"Subparagraph (g) (2) (i) is hereby amended by substituting 'on or before July 3, 1942' for 'within 10 days of the effective date of this Order.'

## Confused Parts Situation Awaits Changes in L-38

Movement of Essential Repair Parts Hindered As Interpretations Vary

BULLETIN!

WASHINGTON, D. C. (June 19)—The amendment to Order L-38 which is expected to clear up the matter of the availability of repair parts for commercial refrigeration units, and other points in the order that have been open to interpretation, was scheduled to be released today (Friday). However, the official release had not been made by noon, and it was indicated that the release might be held up for a few more days.

DETROIT (June 19) — As this issue of AIR CONDITIONING & REFRIGERATION NEWS goes to press the promised amendment to Limitation Order L-38 covering air conditioning and commercial refrigeration equipment which would clear up the question of how parts can be obtained, had not been issued.

The situation is this. Order L-38, if strictly interpreted, would freeze commercial refrigeration parts. Further, Preference Rating Order P-126, setting up a method by which an application can be made for a priority rating on parts, is hardly in operation as yet. So the apparent recourse for those needing parts for emergency service was the old P-100 order, the general repair and maintenance preference rating order.

### DOES L-38 GOVERN?

Some local WPB officials, however, said that this could not be done because L-38 had superseded P-100. When the question was put to the Air Conditioning & Commercial Refrigeration Branch of WPB the answer was given that "the intent of L-38 is not to cover repair parts as such. Amendment which will issue shortly will clarify this."

A bulletin just issued by the National Refrigeration Supply Jobbers Association on the subject relates that Peter H. Askew, Refrigeration Supplies Distributors, Los Angeles, had been advised by the local WPB office that it would be necessary for servicemen to wait for P-126 to become operative, and that the alternative at the present time was for the consumer (user) to wire Washington on the Emergency Repair and Maintenance Application PD-333. Apparently this form can be obtained at WPB offices.

### PD-333 FORM

The definition of "emergency" is given in the form as follows:

"'Emergency' means an actual breakdown or a situation where it is evident that a breakdown or suspension of operations is imminent because of damage, wear and tear, destruction, or failure of parts or the like, and the required parts or supplies are needed to repair machinery or equipment in order to avert such suspension or breakdown. Expected replacement of parts because of normal wear and tear, for which normal inventory can be maintained, is not included."

In making the request for emergency assistance, information has to be supplied as to the description and quantity of material requested; relationship to the War program, public safety, or health; reason for filing application on Form PD-333; and, a concise statement of the "emergency" situation.

# Distributor Gets 950 Household Service Calls Out of Mailing to 7,500 Prospects

## Annual Refrigerator Checkup Plan Plus Offer of Beverage Container Brings Flood of Service Business

PITTSBURGH—When 950 returns from 7,500 direct-mailing pieces poured in to the Danforth Co. here recently requesting the store's special offer to service customers on its annual Westinghouse refrigerator check-up, the company had to call a halt to sending out more letters until the first flow of servicing was taken care of, reports I. W. Danforth, president.

Consisting of a letter explaining the check-up offer, a folder illustrating the Hall China beverage container included in the offer, and a return postcard, the mailing was sent to users whose refrigerators had passed the one-year free warranty mark.

### SPECIAL PRICED AT \$3.75

The price of the check-up was regularly \$3, while the retail value of the beverage container was \$2. The special combination price was placed at \$3.75. In addition, a special price of \$2 was offered on the installation of a new rubber door gasket, provided the work was done at the same time.

The letter stated that the check-up would include:

1. Inspect and check the entire refrigerator.
2. Thoroughly clean the condensing coils.
3. Test and clean the control and thermostat.
4. Inspect and clean fan and motor.
5. Inspect and clean the starting and running mechanism.

### 60% NEEDED MORE WORK

Working on a first come, first serviced basis, Norman Williams, service manager, was able to work the special check-ups efficiently in with the regular service calls. In addition to the success of the large returns, it was discovered that 60% of the special check-up customers required further service.

Mr. Danforth attributes the wide response to the fact that the letter emphasized the importance of taking care of present refrigerators. It also pointed out that regular check-ups result in better and more economical performance of the refrigerator.

The Danforth Co. service set-up

was carefully planned and organized, Mr. Williams explained. In passing on some of the points involved, he included:

1. In establishing service rates, a thorough cost analysis was made, involving the time required for various jobs, tools, automobile expense, and all other overheads. When the manufacturer's warranty allowance was discontinued and it became evident that rates would have to be raised, the knowledge of the costs made it possible to do this on an accurate basis.

2. Stock is rigidly controlled. Each serviceman's truck is equipped with two of each part commonly used. As he uses these parts, he replaces them by presenting a copy of the invoices on which they were charged. Periodic checks are made of truck stocks. Any shortages are charged to the servicemen. The complete stocks are closely controlled by a Kardex system. Quantities carried in stock have been determined by careful study of the requirements over a period of time. This not only avoids over-stocking, but eliminates delays through shortages and cuts down the routine involved when large numbers of orders must be placed for individual parts.

3. "One-form" operation greatly simplifies the routine. This form, used in quadruplicate, serves as a customer invoice, stockroom, accounting department, and service department records.

4. Car operating expense and time losses are kept to a minimum by

## Letter Explains Check-Up Plan

**Annual Westinghouse Refrigerator Check-Up . . .**

**DANFORTH COMPANY**  
5820 CENTRAL AVENUE  
PITTSBURGH, PA.  
TELEPHONE WILSON 5800

To Our Owners of Westinghouse Refrigerators—

Once again—at the specific request of many of our dear friends—we are making available to you our **ANNUAL WESTINGHOUSE REFRIGERATOR SPECIAL SERVICE CHECK-UP**.

In other years, this has been an important service to you. In 1942 it is of even greater value. Because of the All-Out National Defense Program, the manufacture of new refrigerators will have to be considerably curtailed. Hence the industry is stressing the wisdom and economy of maintaining your present refrigerator in first class operating condition.

Your Westinghouse is an excellent refrigerator, and with normal care will undoubtedly give you many years of satisfactory refrigeration service. Like any piece of mechanical equipment, however, it will give you even better performance if it periodically receives some special attention.

Repeated tests have shown that the annual removal of dust and dirt from the condensing coils of your refrigerator will result in far more efficient operation—meaning specifically, **FASTER ICE MAKING AND LOWER OPERATING COSTS**. Furthermore, a thorough checkup of your refrigerator now, will save service expense and annoyance in the hot summer months to come.

This year we make available to you a Special Combination Offer at a greatly reduced price, as follows:

**COMBINATION OFFER**—Includes the Service Work listed below, PLUS one of the beautiful Westinghouse Hall China Beverage Containers illustrated and described on the attached sheet:

1. Inspect and check the entire refrigerator.
2. Thoroughly clean the condensing coils.
3. Test and clean the control and thermostat.
4. Inspect and clean fan and motor.
5. Inspect and clean the starting and running mechanism.

The list price of the Westinghouse Beverage Container is \$2.00; the regular charge for one ordinary service call is \$3.00, making a combined value of \$5.00.

**OUR SPECIAL PRICE FOR THIS COMBINATION OFFER IS ONLY \$3.75 COMPLETE.**

In the event that you require the installation of a new Rubber Door Gasket, we offer a Special Price of \$2.00 additional if the work is done at the same time as the above Combination Service.

Please bear in mind that this Special Service Check-Up Offer is available **NOW ONLY**, on a "first come, first serviced" basis. Do not delay. Fill in the enclosed reply card before it is lost or mislaid, and **MAIL IT IMMEDIATELY**.

We greatly appreciate this opportunity to be of further service to you, and hope that you take prompt advantage of this worthwhile offer.

Sincerely yours,  
N. Williams  
Service Manager.

Date \_\_\_\_\_

**DANFORTH COMPANY:**  
I wish to take advantage of your Westinghouse Refrigerator 1942 Service Check-Up Offer as outlined in your letter.

It is understood that for the sum of \$3.75, you will render the Service Work mentioned and deliver to me one Hall China Beverage Container.

☐ If I do not require a new Rubber Door Gasket for an additional \$2.00

I will pay the stated price to your Service man upon completion of the work and delivery of the merchandise.

NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_

(Please Print)

Reproduced above is the letter sent by Danforth Co. to Westinghouse refrigerator owners explaining the annual check-up plan and beverage cooler offer.

## You've got to keep them on the job!

This war is placing a lot of additional responsibilities on the maintenance man's shoulders. It isn't easy to get replacements if refrigeration equipment goes haywire. That's why it is good going to head off trouble by drying refrigerants DRY, by cleaning and freeing them from acid.

Alorco Activated\* Alumina helps you assure smooth, uninterrupted operation of refrigeration equipment. It does an effective drying job, removing every trace of moisture to dew points of -110° F. It also removes sludge and acid. Cartridges or dehydrators charged with this efficient drying agent, inserted in the refrigerator lines you service, avoid trouble with frozen valves, reduce wear and prevent corrosion.

Your supply house can take care of your requirements. Be sure to specify "Alorco Activated Alumina" for maximum drying and purifying efficiency. ALUMINUM COMPANY OF AMERICA (Sales Agent for ALUMINUM ORE COMPANY) 1908 Gulf Bldg., Pittsburgh, Penna.



These manufacturers supply cartridges and dehydrators charged with Activated Alumina: American Injector Company... Fedders Mfg. Company... Henry Valve Company... Imperial Brass Mfg. Company... Kerotest Mfg. Company... McIntire Connector Company... Mueller Brass Company... Cyrus Shank Company



\*Registered trade mark



dividing the entire territory into zones to which each serviceman is assigned. Each man picks up his orders in the morning, telephoning in once or twice a day to get emergency calls. Whenever field calls slow down, men are given reconditioning jobs in the shop.

Mr. Williams emphasized the importance of getting complete information when the customer calls to avoid unnecessary calls and to prepare for unusual service.

It is made clear to customers that service is on a cash basis. Where the serviceman has been called unnecessarily, the customer is charged half the normal flat rate, which has recently been raised from \$3 to \$3.50.

Virtually all refrigerator service jobs can be handled in an hour, Mr. Williams believes. Each Danforth serviceman is expected to handle a minimum of seven calls daily, except under unusual conditions.

### New Owner Will Convert To 100% Service Work

SAN FRANCISCO—The Irving Radio and Appliance Co. store formerly operated by T. M. Irving at 2019 Western Ave., has been purchased by C. M. Mosher, who will convert the organization into a 100% service business for the war.

### No Joints! No Leaks



This Rome Jointless Water Cooled Condenser is a typical example of Rome's ability to provide trouble free condensing equipment. Rome Water Cooled Condensers are used by many leading compressor manufacturers. Write for complete information.

**ROME-TURNEY RADIATOR COMPANY**  
222 Canal Street  
ROME, N. Y.

### Gross Sales of Philco Gain in 1st Quarter

PHILADELPHIA—Gross sales of Philco Corp. totaled \$17,139,891 in the first quarter of 1942, as compared with \$16,476,996 in the corresponding period a year ago, it has been announced by James T. Buckley, president.

Net income after provision for estimated Federal and State income and excess profits taxes totaled \$286,035 or 20.84 cents per share of common stock in the first quarter of 1942. This compares with net income, after adjusted taxes, of \$269,772 or 19.66 cents per share in the corresponding period a year ago.

### Manhattan Card Tells How To Care for Rubber Belts

PASSAIC, N. J.—To further rubber conservation the Manhattan Rubber Mfg. division of Raybestos-Manhattan, Inc. has prepared a wall card giving complete instructions for the proper installation and care of rubber transmission belts, V-belts, and conveyor belts.

This card is the third in a series issued by Manhattan Rubber in the current national campaign to save rubber, the first two cards being devoted to "The Proper Care of Fire Hose" and "The Proper Care of Rubber Hose."

★★★★★★★★★★



Mills Condensing Units  
By Mills Novelty Company  
4100 Fullerton Ave., Chicago, Ill.

★★★★★★★★★★

## Aids Designs For Victory —

Air Cooling Cuts Man-Hour Loss  
In Drafting Room of Shipyard

## Home of Famed 'P-T' Boat Has Roof Installation

NEW ORLEANS—Production of P-T torpedo boats—those swift, mosquito-like motorboats which can dash in, sink a battleship and be gone in a dash at speeds only a few miles per hour slower than record-holding speedboats—is being considerably facilitated at the City Park plant of Higgins Industries, here, since the Carrier air conditioning division of the same firm installed a 60-ton air conditioning system to cool the administrative, drafting, training, and personnel offices of the huge plant.

The City Park plant is the first step in a huge expansion program under which Andrew Jackson Higgins, veteran shipbuilding contractor of New Orleans, will produce not only torpedo boats but 200 Liberty Ships for transoceanic war shipping, the latter being the largest contract ever let by the government in the history of the country.

The City Park plant was completed in October of last year, and produced the torpedo boat of the Eureka type which sneaked into Manila Bay last January and sank the first of a group of Japanese cruisers to attack Corregidor and Manila. Air conditioning has played a large part in turning out perfectly-designed torpedo boats since the first units started down the 300-foot assembly line in the factory.

Layout of Building and  
Cooling Requirements

A three-story building, guarded by and operated by the Navy while sub-operated by Higgins Industries, the City Park plant encloses a former factory building. On the top floor is the huge drafting department which lays out plans for each boat, on the second, the general offices and management departments, purchasing and naval offices, and on the first floor a publicity department, personnel office, and a group of classrooms for Navy training of boat pilots, navigators and crews.

In each of these departments, air conditioning was absolutely essential because of the 100° summer temperatures and 90% humidity conditions common to New Orleans. Without it, according to the management, loss of man hours through illness and mistakes in drafting, etc., would seriously hamper the rapid production of P-T torpedo boats. Particularly in the drafting room, on the top floor, and exposed to a heavy sunload magnified by a metal roof, was it necessary to provide cool comfortable conditions for draftsmen working on microscopically fine blueprints and specifications.

The air conditioning system installed to insure health and pleasant working conditions was designed by Weil & Moses, well-known New Orleans air conditioning engineers, and installed by the Carrier division of Higgins Industries, headed by George Macheca. Cooling only the administrative, training, drafting, and personnel offices, it is a 60-ton system capable of operating at maximum economy through a four-step compressor arrangement.

Equipment Installed on  
Roof to Save Space

To save space, the refrigerating equipment was installed on the roof of a second-story building which was enclosed under the main roof when the City Park plant was expanded to its present size. Located here are two 7-8-66 Carrier compressors, and two 7-9 evaporative condensers, compactly built up in combination with duct-type gas fired unit heaters for the short winter heating period.

A direct-expansion installation, the distribution includes one fan station per floor, each containing a single bank of coils, a blower, and thermostat controls in the return ducts. Dampened intakes on each blower housing connect with fresh-air intakes, permitting admission of fresh outside air up to 65% and the use of the system for ventilation only if desired.

Also suspended in the ductwork are unit gas heaters, flanged in at

neers, is concentrated on the second floor general offices. Distribution of cooled air throughout is by means of ceiling Venturi-Flo outlets, spaced 14 feet apart down the soundproofed ceilings on each floor. Powers regulators are set to maintain a temperature of 80° F. with 60% relative humidity over all floors.

Rooftop Location  
Saves Much Ductwork

The convenient rooftop location of the compressor plant on the enclosed building made it possible to dispense with much ductwork, and to operate the system as economically as possible while considering the large area to be cooled. Compressors are regulated to operate in four steps through a 24-hour cooling load, utilizing 15-tons cooling capacity per step. At average operation the plant will expend only around 30-tons capacity, adding another 15 tons during hot afternoons, and the remaining 15 tons at peak load. Except for a short period each night, the system will run almost continuously, heating, cooling, or ventilating the building.

Need For Clean Air  
In War Work Shown

BLOOMFIELD, N. J.—Assisting in the manufacture of bombsights, Army binoculars, tanks, and guns, and in the preparation of blood plasma are Westinghouse "precipitrons," air cleaners acting in conjunction with air handling equipment, reports George F. Begoon, manager of the company's Precipitron division.

In 16 Naval air stations the equipment is supplying clean air to the rooms where bombsights are overhauled and repaired. All dust must be kept out of the optical systems of bombsights if they are to maintain great accuracy.

The air cleaners are also used in eight American defense plants producing Army binoculars, range finders, and submarine periscopes. Clean air in these factories prevents the collection of dust on precision lenses during assembly.

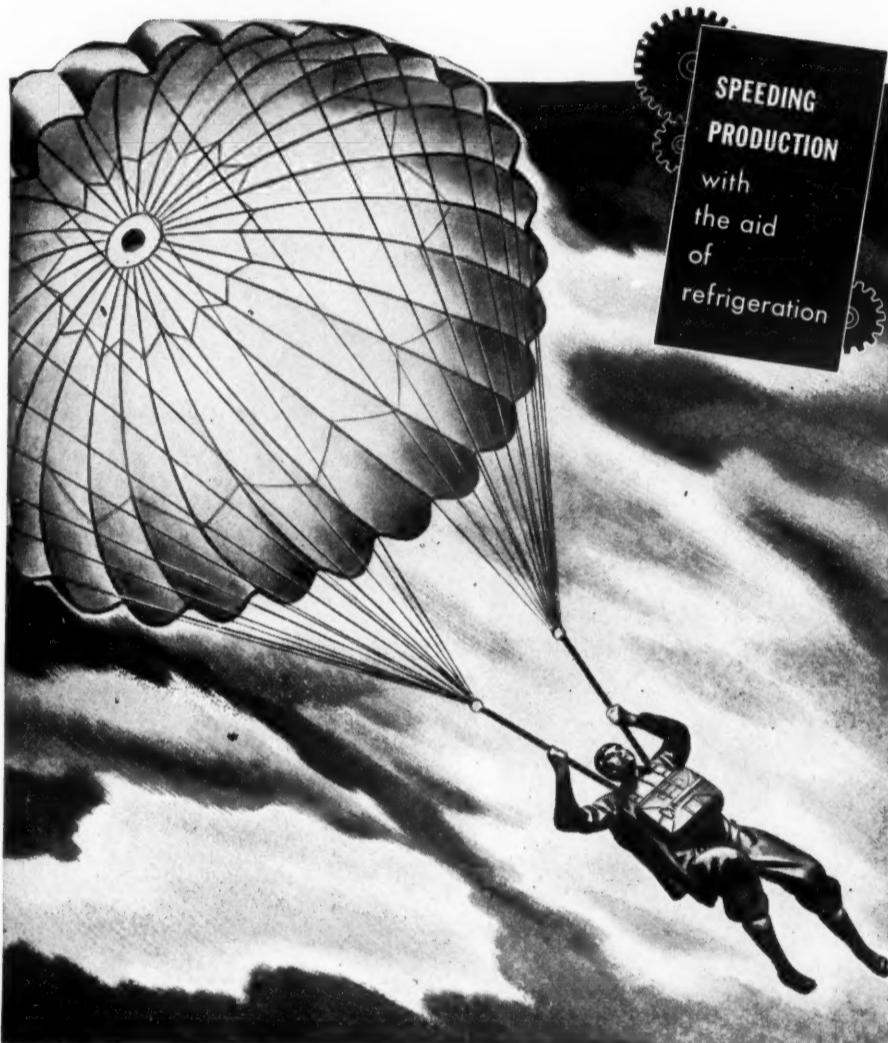
Fifteen hundred precipitron cells

will soon be at work in a Naval Ordnance plant where bombsights are manufactured. That number of cleaning units will supply 900,000 cubic feet of clean air a minute. In an arsenal, they are banishing dust from rooms in which delicate optical instruments, bombsights and anti-aircraft ammunition are manufactured.

In another, where parts of Army tank bodies are welded together, a unit removes welding fumes from the factory air to protect the health of workers. In a third arsenal the cleaners keep dirt off the delicate polished surfaces of precision gauges.

McQuay Purchases  
New Plant Space

MINNEAPOLIS — McQuay, Inc., manufacturers of air conditioning and heating equipment, has purchased the 41,000-square-foot factory-warehouse occupied by the H. V. Johnson Culvert Co. here. The new structure is two blocks away from the present quarters of the McQuay company.



SPEEDING  
PRODUCTION  
with  
the aid  
of  
refrigeration

**"FREON"**  
**PREVIEWS**

Owes life to a worm  
... no longer!

SILKWORMS HAVE NEVER suited the American pace. But could we better silk? American science set out to find the answer.

The result was nylon—a triumph of chemical research. Today, this remarkable chemical fibre gives us an urgently needed material for parachutes and other military needs. And after the war, thanks to nylon, American women may never have to depend on silk again—for there will be more, and better nylon, than we have ever known.

A partner in this triumph is air conditioning—for accurate control of temperature and humidity is essential in the production of nylon. Air conditioning is also an essential partner in our great "blackout" plants—indeed, in virtually all aircraft plants, for engine testing—for high precision production of parts—to provide clean air where finished parts are exposed before assembly.

Refrigeration also helps make film for aerial photography. It makes possible as much as 27% more iron from

blast furnaces. And air conditioning aids in the production of copper, by making deep mines workable.

Tomorrow, refrigeration and air conditioning will bring us still higher standards of comfort and health. But today, they have one urgent task—to help speed industrial production for war. "Freon" safe refrigerants, are pledged to assist in that task to their maximum ability. Kinetic Chemicals, Inc., Tenth & Market Sts., Wil., Del.

Save vitally needed "Freon-12," repair parts and power—have your refrigerating system inspected regularly by a service man.

**KINETIC**  
**FREON**  
REG. U. S. PAT. OFF.  
safe refrigerants

\* "Freon" is Kinetic's registered trade mark for its fluorine refrigerants.

Here's the third "Freon" advertisement of a series of six appearing in TIME Magazine. In the July 6th issue of TIME it will carry your message and ours to 3,000,000 persons—an important, policy-making cross-section of the American public.

The major objective of this advertising is to help you by giving the public specific, interesting facts about the part being played by refrigeration and air conditioning in the war effort.

Also contained in these ads is a plea for conservation of power, repair parts and refrigerants through proper equipment maintenance. Won't you help make this effective by impressing on every user, the need for periodic inspection of refrigeration and air conditioning systems. Do this, and you will have made an important contribution to the war effort. Kinetic Chemicals, Inc., makers of "Freon" safe refrigerants.

# Priorities Regulation No. 11 To Govern Flow of Materials July 1 To Bring Change In Priorities Certification Form

## Plan To Provide For 3 Months' Supply of Metals To Users; Emphasis on 'End Use'

WASHINGTON, D. C.—A pattern for flow of materials to the nation's wartime industry was announced recently in a joint statement by William L. Batt, chairman of the Requirements Committee of the War Production Board, and J. S. Knowlson, Director of Industry Operations.

It is the first overall effort to coordinate control of the distribution and use of scarce materials, and is embodied in a new Priorities Regulation No. 11.

The regulation provides for establishing definite quantitative limits to the acquisition of metals and other scarce materials by any person or company using more than \$5,000 worth of metal in a calendar quarter. Government arsenals, shipyards, etc., are subject to the requirements, as well as manufacturers of munitions, ships, airplanes, and all other large users of metal.

The joint statement of Mr. Batt and Mr. Knowlson follows:

"The huge materials requirements of the growing war production program make it necessary to institute much stricter controls over the use of metals and other scarce materials. The priorities system as it was developed last year as a means of giving preference to defense orders no longer provides adequate control.

"Creation by the President of a Combined Production and Resources Board to coordinate the distribution of materials and the production programs of the United States and its Allies gives the War Production Board increased responsibility for directing every available pound of material into the war program and absolutely essential civilian uses.

"The United States has tremendous resources in raw materials, and even greater resources in productive machinery. Production of non-essential civilian goods has been virtually stopped for the duration of the war,

and it is now necessary to exercise careful control over the distribution of materials among military and vital civilian demands such as transportation, war housing, etc.

"The general staffs of the United Nations will advise the Combined Production and Resources Board as to strategic requirements of weapons and ships. In the same way, the Armed Services of the United States and the Maritime Commission will inform the War Production Board of the types of materials and equipment most vitally needed, and their order of urgency.

### The Allocation Plan

"The Requirements Committee of WPB, on the basis of these statements of direct war requirements, and other information on essential civilian needs, will establish the broad policies for the distribution of scarce materials. The policy decisions of the Requirements Committee, on which the Army and Navy are represented, will determine the part of the total available supplies of basic materials which can be made available in each calendar quarter to war industries and other consuming groups.

"Within these broad policy limits established by the Requirements Committee, the Bureau of Priorities will determine the maximum quantities of scarce materials which may be acquired by each individual company required to qualify under the plan in each three-month period beginning July 1. In making these determinations, the Bureau of Priorities will be guided by the recommendations of the Armed Services, and of the other divisions of the War Production Board.

"The basic instrument which will be used in this quarterly apportionment of materials to individual companies is the Production Require-

ments Plan. It should be emphasized, however, that the Production Requirements Plan under this program will no longer be primarily a mechanism for the assignment of preference ratings to each applicant on the basis of the rated orders the applicant has on his books. PRP now becomes the chief means by which the War Production Board will execute general policies. The emphasis from now on will be on the end use of materials rather than on preference ratings. A classification system, already announced, will be used to obtain information on end use to assist in controlling the distribution of metals during the fourth quarter. "For the first time, by this means, the War Production Board will have centralized control of the distribution of materials, and will be able to relate the total quantities of materials for which preference ratings are assigned to the available supply.

### Who Must Participate

"This ambitious program cannot be put into full operation in one step. For the third quarter of this year, therefore, the primary emphasis will be on the distribution and use of metals. Only companies which use more than \$5,000 worth of basic metal in a calendar quarter will be required to apply under the Production Requirements Plan for the quarter beginning July 1.

"A few special classes of companies, such as those engaged in transportation, construction, mining, and public utility services, will be controlled by existing procedures for the present. The branches of the War Production Board which handle allocations and assignment of priority ratings will be guided by the broad policy determinations made by the Requirements Committee for each group of metals users.

"Every large user of metal will be required to obtain a quarterly authorization for all his scarce material requirements under the Production Requirements Plan. It should be understood, however, that a rating under PRP does not constitute a

guarantee of delivery of materials covered by the rating. Actual shipments of critical materials now under allocation control will be governed by month-to-month directions from the War Production Board, as heretofore, on the basis of the appropriate forms required for each material.

"For the benefit of companies which use less than \$5,000 worth of basic metal in a quarter, and are therefore not now required to apply under the Production Requirements Plan, a percentage of the total supply materials will be set aside, and they may obtain their minimum requirements from this reserve by use of the regular priorities procedures which have been in effect up to now.

### No Other Extensions

"To prevent leaks in the program, all companies which receive certificates under the Production Requirements Plan will be prohibited, after July 1, from using or extending preference ratings assigned in any other way, except for construction, or items of capital equipment. Companies which have filed a PRP application may continue to use other ratings within specified limits until they receive their certificate, but no company using more than \$5,000 worth of basic metal in a quarter which has not filed a PRP application by July 1 may use any form of preference rating for production materials after that date.

"This is the metal control program for the third quarter of 1942. It will require the wholehearted cooperation of everyone concerned."

Priorities Regulation No. 11, issued June 10, affects any company, business, person, plant or division of a company maintaining a separate inventory whose past or anticipated quarterly receipt or withdrawals from inventory of metals in the forms covered by an accompanying Metals List aggregate \$5,000 or more, with certain exceptions mostly; United States or other Government agencies.

With these exceptions, all companies using over \$5,000 worth of metal quarterly are defined as Class I Producers, and are required to file a PRP application by June 30.

An interim procedure is provided, allowing companies which have properly filed an application but have not yet received a rating certificate under PRP to continue applying preference ratings under any appropriate "P" order (even if the "P" order was scheduled to expire on June 30) or individual preference rating certificate, or to extend preference ratings on orders which the company is engaged in filling.

However, the company may not use any such preference rating or ratings to obtain more than 40% of the amount of any given material which has been indicated in its PRP application as the estimated requirement for the quarter, and any material so obtained must be deducted from the amount authorized on the PRP certificate when it is received.

No Class I Producer who fails to file a PRP application by June 30 may use any preference rating after that date except ratings assigned for construction or capital equipment.

No company which has received a PRP certificate may apply or extend any other preference rating except for capital equipment or construction, and no such company may accept delivery of materials listed in Materials List No. 1 of the PRP application form, PD-25A, or other materials for which he has sought priority assistance, in greater quantities than those authorized on the certificate.

Companies operating under PRP which need capital equipment or priority assistance for construction or expansion may apply in the usual way on PD-1A or PD-200 and PD-200A application forms.

WASHINGTON, D. C.—The use of preference ratings will be simplified and standardized by the terms of an amendment to Priorities Regulation No. 3, announced June 12.

Effective July 1, any preference rating, no matter how it has been assigned, may be applied or extended by a single form of certification, which states merely that the purchaser certified to the seller and to the War Production Board that he is entitled to use the preference ratings indicated on his purchase order, in accordance with the terms of Priorities Regulation No. 3.

Provisions of existing orders which require a purchaser to furnish his supplier with copies of preference rating orders or other special certifications are all rescinded, except for the special provisions of Priorities Regulation No. 9 with respect to the application of preference ratings for certain types of exports.

This change does not, however, affect any provision of existing preference rating orders which limits the kinds of material which may be obtained by use of the assigned rating, or which requires specific information on purchase orders.

### MUST USE SYMBOLS

In addition to the standard certification, orders on which a preference rating is applied or extended after July 1 must also include the identification symbols required by Priorities Regulation No. 10, which established the Allocation Classification system.

The amended Regulation No. 3 restricts extension of preference ratings, in most cases, to material which will be delivered to, or physically incorporated in a product delivered to the person to whom the rating was originally assigned, or which will be used to replace in inventory materials so delivered, subject to definite limitations.

A rating may not be extended to replace materials in inventory except to the extent necessary to restore the inventory to a practicable working minimum. No rating higher than A-1-b may be assigned to orders for replacement of materials in inventory, even though the order for which the materials were used may have carried a higher rating.

### 'BASKETING' PROVISION

A "basketing" provision permits the simultaneous extension of ratings which have been assigned by different preference rating certificates or orders on a single purchase order. When ratings are basketed in this way, the lowest rating may be extended for the whole order, or the various items in connection with which the ratings are extended may be listed separately, with the corresponding rating applied to each.

Special provision is made for small manufacturers not operating under the Production Requirements Plan. Such producers may extend ratings to deliveries of operating supplies including lubricants, small perishable tools, etc., which are required and will be consumed in filling the rated order which they are extending, but the cost of such operating supplies must not exceed 10% of the cost of the materials to which the rating is extended and which such supplies are used to process. Not more than 25% of the operating supplies obtained in this way during any month may be metals in the forms described in the Metals List of Priorities Regulation No. 11.

Class I Producers as defined in Priorities Regulation No. 11—large users of metals required to apply under the Production Requirements Plan—are prohibited from extending ratings for any purpose after July 1.



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## Priorities Information

### Bulletin Outlines Procedure For Filing PD-1A Form on Refrigeration Jobs

#### Suggestions Given For 'Reason Why' In Ordinary Jobs

GRAND HAVEN, Mich.—A widely acclaimed bulletin on the use of the PD-1A application form in requesting a priority rating that will permit the installation of commercial refrigeration equipment has been issued by the Puffer-Hubbard Mfg. Co. here.

Points to emphasize and correct use of the "end use" coding chart are outlined in the bulletin, part of which is published as follows:

#### Clearing PD-1A Applications

L-38 Order requires application for installation of new equipment on Form PD-1A. Mail your application to the War Production Board, Washington, Reference L-38. The application should be passed on within one week.

Use the coding chart, showing end use of new equipment. (Editor's Note: This coding chart was published in the June 1 Bulletin Issue of the NEWS.) This is important. PD-1A forms can be secured from your local or nearest WPB office.

When filing application for beverage cooler installation or other items that you have in stock or can secure from our stock, state clearly in application that you have this equipment in stock.

#### Tips for Salesmen

Salesmen should equip themselves with very definite suggestions for the customer's benefit when filling out the PD-1A. Keep in mind the degrees of essentiality of the new equipment. In other words, the merchant must answer questions in such a way as to assure a rating.

Do not waste your time and efforts on non-essential sales. The WPB has set up a special branch to handle commercial refrigeration applications. Work with this Board to the best of your ability. Application should be properly filed with "End Use" description clearly stated, so that the examiners can quickly approve the application.

#### A Few Suggestions for Application "End Use"

1. My store is located in a defense area. I am now serving the needs of many more families in the community, so must have this food storage refrigerator to take care of this added demand.

2. Since the tire shortage this store has been handling fresh milk, butter, cottage cheese, etc. Our present refrigerator is not big enough, so some of this food will spoil unless we can get quick delivery, etc.

3. This application covers a refrigerator for storing fresh meats. Present refrigerator is — years old and is in such poor condition our meat spoils. We have to replace it with one of the same size. We are in a defense area.

4. Our meat cooler is — years old. For some months now meat has been spoiling so unless this application is given a high rating, and we get prompt delivery, a bad situation will occur.

5. Our restaurant is serving considerably more meals than formerly due to factories busy on war work. Present refrigerator is too small (or too inefficient, etc.), so we must have the new equipment at once.

6. Refrigeration is urgently needed for use in the diet kitchen of this hospital (or other institution). Present equipment is obsolete and must be replaced without delay.

7. Due to the enforced curtailment of food deliveries, we find it necessary to store our meats, fresh fruits, and vegetables, etc., in much greater quantity and for longer periods than formerly. The refrigerated storage equipment covered by the application is urgently needed to replace present facilities, or valuable food will spoil or go to waste.

8. Deliveries of fresh vegetables to this store have been cut from three times a week to once a week. Our present non-refrigerated product cabi-

net is now useless, for we must keep these very perishable foods under constant refrigeration. Unless this application for a new vegetable storage refrigerator is approved, we will not be able to serve safe food to the community.

#### "End Use" All-Important

After all other points have been covered in the application, be sure to add a final punch: "This refrigerator is to be used for storing —," specifically naming the kind of perishable food to be handled. An example is: A merchant desiring a case in which to store bulk or bottled milk. An application of this kind will get top rating.

Be sure to specify delivery date on each application.

When filing applications, remember that you are applying for commercial food storage refrigerators. Forget all about the usual store equipment terminology. Take those words out of the dictionary for the duration. Words like urgent, spoilage, waste, defense operations, perishables, etc. make good "ammunition." Do a conscientious job.

#### Emergency Orders

In emergency cases, do not hesitate to wire WPB for telegraphic authorization to fill an order. Example: A charitable Catholic organization operates a summer camp for undernourished and crippled children. Camp is due to open June 1, and a new refrigerator must be installed by that date. Solution (of an actual case):

"J. M. Fernald, Chief  
Air Conditioning & Commercial  
Refrigeration Branch  
War Production Board,  
Reference L-38  
Washington, D. C.

"— opening camp for undernourished and crippled children June 1 and must have delivery our Model 380 food storage refrigerator by that date. Please telegraph authorization. PD-1A mailed today."

#### Check Coding Chart in Three Columns

For example, the application is for a store refrigerator. The salesman would check item 19 in the first column, 33 in the second, and 1 in column 3. Thus the rating official can tell at a glance how high a rating the order is entitled to. Be sure and impress upon the salesman or dealer that this chart is not a substitute for PD-1A. The latter form must be used, and in all instances must be fully and accurately filled out by the customer; then, attach coding chart showing "end use."

#### Gain In Quarter Shown By Tecumseh Products

TECUMSEH, Mich. — Tecumseh Products Co. here reported a net income of \$111,804 or 75 cents each on 150,000 shares of stock for the first 1942 quarter, compared with \$67,123 or 45 cents a share during the March quarter last year.

Net sales for the first three months this year totaled \$2,609,112 against \$1,994,794 during the corresponding 1941 period, company officials stated.

#### Dole Promotes Freezing Equipment To Restaurants

CHICAGO—The Dole Refrigerating Co. here is sending a new mailing piece emphasizing fast freezing to a selected list of processing plants, hotels, clubs, and restaurants, according to Ernest C. Wilbur, advertising manager.

With tin a critical war material, the mailing offers fast freezing as the solution to the food preservation problem.

## Copper Recovery Chief Asks More Care on Forms

NEW YORK CITY—The Copper Recovery Corp. is having a lot of extra work piled on its head by the improper filling out of questionnaires covering the frozen stocks of idle and excessive copper inventories, Isadore Glueck, president of the corporation, stated last week.

"Everyone receiving these forms must fill them out carefully, report on each form his inventory situation, and fill out the necessary affidavit corroborating these reports," he explained.

"Where no inventories are on hand or where inventories are not idle, excessive, or frozen through the Conservation or Limitation Orders, lines are provided on the form for that statement and affidavits should support same."

The corporation was formed by the WPB in an effort to place fabricated frozen stocks of copper and copper alloys in the war effort or to convert them into products for direct use in the war effort, where the metal is urgently needed.

"Every manufacturer and holder of copper or copper alloy products should go over his inventories carefully and see that any stocks that are not required for the war effort are submitted on this report, insuring the proper raw material for the war effort," declared Mr. Glueck.

"In most cases definite prices are attached to the questionnaire, and a great proportion of the forms now being received show willingness of the holders to cooperate in disposing of their stocks."

The corporation is now training personnel to speed up the tremendous task of processing and converting the huge tonnage expected to the use of the war program.

## 'R & H Chemicals' Now 'Electrochemicals Dept.' Of the du Pont Co.

WILMINGTON, Del. — Electrochemicals Department will be the new name of the R. & H. Chemicals Department of the E. I. du Pont de Nemours & Co. after June 1, announced company officials, who believe the new title describes the type of products manufactured by this department of the company without infringing on the activities of the nine other units.

Emphasizing chemicals rather than processes, the Electrochemicals Department covers all chemicals which are derived from electrochemical reactions and specializes in chemicals used in electroplating, metal cleaning, bleaching, refrigeration, and ceramics.

At its largest plant sodium and chlorine are produced electrolytically.

The department's original name arose from the Roessler & Hasslacher Chemical Co., which du Pont acquired in 1930.

## Greater Material Use Allowed If Substance Used Is Less Critical

WASHINGTON, D. C.—Installation of equipment calling for more material than that being replaced is permissible under the Plumbing and Heating Repair and Maintenance Order (P-84), if the substitution is one of less critical material for that which is more critical.

This is made clear by Interpretation No. 1, issued today, which also declares that the prohibition against a substitution "more extensive than that which is necessary to replace" worn-out or damaged parts does not mean that the identical part or parts must be replaced.

Furthermore, installations calling for a different kind of equipment are not necessarily more extensive within the terms of the order, if the new parts do not contain a greater weight of metal. For instance, coal burning equipment is a permissible replacement for oil burning or gas burning equipment.

In explaining that a material less critical may be used for replacement, the Interpretation says that "where steel equipment is replaced by cast iron equipment, the substitution is not 'more extensive' even though the substituted equipment be heavier than that replaced. Similarly, a substitution of iron and steel equipment for copper or copper base alloy is not a 'more extensive' substitution even though the substituted equipment be heavier than that replaced."

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## GUNS AND BUTTER (Cooling)

SERVEL'S great factories are doing their full share in the direct production of vital war materials.

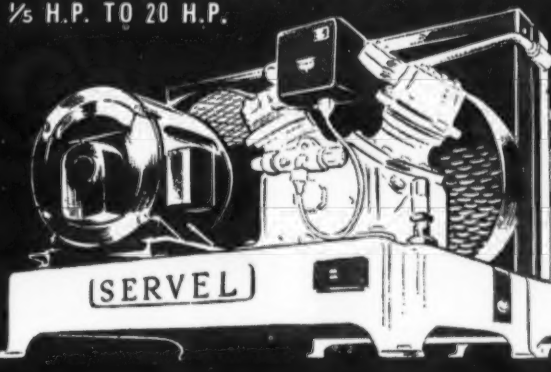
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## Doctor Outlines Proper Methods For Blood Plasma Preservation

**A.S.R.E. Hears Researcher Explain How Time & Temperatures Are Critical In Blood Bank Work**

SKYTOP, Pa.—The technical considerations from the refrigeration standpoint in the preservation and drying of blood plasma were described to refrigeration engineers by a doctor of medicine when Dr. Strumia of Bryn Mawr hospital addressed the recent spring meeting of the American Society of Refrigerating Engineers on "The Role of Low Temperature in the Preservation of Plasma."

Dr. Strumia, famed for his research on plasma preservation, told the engineers of changed concepts about temperature requirements in the various preservation methods, and made practical suggestions as to the design of equipment.

Plasma, explained Dr. Strumia, is the liquid portion separated from whole blood in which clotting has been prevented by the addition of sodium citrate.

Because of its high protein content, because it can be readily prepared and preserved for indefinite periods of time, because it can be easily transported and administered in large and repeated doses, without the necessity for typing or cross matching, and because it is free from reactions, plasma has proved to be an ideal means of restoring an adequate blood circulation in patients suffering from secondary shock and burns, the doctor declared.

Dr. Strumia discussed the role of low temperatures in the preservation of plasma according to the three physical states in which the material may be preserved—liquid, frozen, and dried.

The preservation of plasma in the liquid state at temperatures from 35 to 39° F., has been, and unfortunately, is employed by many clinical laboratories, he said. Unfortunately because at this temperature neither protection against bacterial growth, nor proper preservation of some of the most important components of plasma, are obtained. In addition at this temperature there is a tendency for certain proteins, particularly fibrinogen, to flocculate, thus rendering necessary filtration of the material before administration to avoid serious accidents.

In dealing with any therapeutic

agent, stated Dr. Strumia, first consideration must be given to the safety of the material. In the plasma preserved at 35 to 39° F., this safety is endangered by the possibility of bacterial growth from a minimal chance contamination, with the development of toxic pyrogenic substances, and by the progressive flocculation of certain proteins. In addition, in plasma preserved at this temperature range, there is a continuous deterioration of certain essential elements, such as prothrombin and complement.

Thus, said the doctor, preservation of plasma in the liquid state is to be discouraged but, if there is no other means available, then liquid plasma should for short periods of time be preserved at room temperature above 60° F., because, under these conditions, the stability of proteins is much greater and flocculation greatly reduced.

### The Wrong Way

However, preservation of plasma in the frozen state preserves not only specific antibodies, but nonspecific antibodies as well, and prothrombin. In addition, preservation of plasma in the frozen state effectively prevents bacterial growth, as well as the flocculation of unstable proteins.

The requirements for proper freezing of plasma have been generally poorly understood, said Dr. Strumia, and there has been the tendency to take for granted that so long as a bottle or bottles of plasma are placed

in a storage cabinet at -40° F., proper freezing will take place. This, however, is not always the case.

When plasma is super-cooled, previous to freezing, at temperatures between 20 and 30° F., flocculation or at least increase in turbidity may occur if the period of super-cooling is protracted. It is also important to note that, even after the largest portion of the plasma has apparently frozen, it takes a considerable length of time for complete freezing.

If this period of time is too long, the stability of certain proteins may be affected so that flocculation occurs when the plasma is returned to the liquid state. Thus, in specifying physical requirements for freezing of plasma, the engineer must be concerned not only with the temperature but also with the heat capacity of the apparatus.

Theoretically, to free 300 cc. of plasma and cool it to -4° F., it requires approximately 134 B.t.u., when the original temperature is 77° F. However, glass is a very poor conductor, and this greatly interferes with the heat exchange between plasma and cooling medium. Consequently in addition to the absolute temperature of the cabinet and the capacity of the compressor already mentioned, the medium of heat dispersion between the evaporator coils and the surface of the bottle is a very important factor in determining the time of freezing.

A plasma freezing test was made with air temperatures of -6 to -8° F., the plasma placed horizontally in a copper half-shell, in contact with the metal walls of the freezing cabinet.

Initiation of freezing, under the experimental conditions, required from 1 hour and 10 minutes to 1 hour and 15 minutes. The period of super-cooling, between 20 and 32° F. should not be prolonged. It is essential to produce initial freezing as soon as possible, since as soon as freezing is initiated the temperature will rise to about 30° F. and remain there as long as the bulk of the plasma is frozen. This period under the experimental condition requires about 3½ hours.

### Proper Freezing Method

However, when the temperature of plasma begins to drop below 30° F. the material is as yet not completely frozen. Complete freezing takes place when the temperature drops to 21 to 24°, and this requires an additional hour and 15 minutes. The time from the beginning of cooling to complete freezing should not exceed 6 hours.

When complete freezing of plasma occurs in approximately 6 hours or less, optimal preservation of plasma is assured, said the doctor. It takes another 3½ hours to cool the material to -4° F. It is during this period of time that bottles made of poor quality glass or improperly filled will break because of expansion of the frozen mass of plasma. It should be noted that "instantaneous" or "quick" freezing beyond the limits just mentioned, does not in any way improve the practical value of plasma.

It appears desirable to specify for cabinets intended for the preservation of plasma in the frozen state, not only the storage capacity, but also, and this is much more important, the freezing capacity of these cabinets, Dr. Strumia cautioned.

Only too often the freezing capacity of cabinets is measured not with the cabinet empty, but with the cabinet partly or fully loaded with bottles of previously frozen plasma. Under these conditions, the cabinet

may be overloaded with bottles of liquid plasma, and freezing of the liquid plasma is not done entirely by the heat neutralizing capacity of the compressor but in part by the plasma already frozen, acting like an eutectic solution. This already frozen plasma may warm up to temperatures not compatible with good preservation, yet remaining apparently frozen.

An ideal cabinet for the preservation of plasma in the frozen state, in the doctor's opinion, should have a separate freezing compartment of specified capacity as well as a storage compartment, where a maximum temperature of 5° F. or less should be maintained. The freezing capacity is best expressed by stating the quantity of plasma completely frozen within a period of 6 hours, when the material is distributed in lots of 300 cc. in glass bottles.

### Storage Cabinet Details

The ideal temperature of preservation is -4° F., because it is readily and economically obtained, because fluctuations in the temperature are less likely to approach the critical temperature of 21° F., and finally because, in case of a failure of the compressor, the material remains frozen for a period of time sufficiently long to secure the services of a repair man.

It is desirable to have a safety device consisting of a bell and red light, operating through a relay, when the temperature of the storage cabinet goes above 14° F. It is also desirable, to increase the safety period, to maintain the storage cabinet full at all times. If plasma is not available, bottles filled with frozen water will do. The purpose of keeping the cabinet full is, of course, to have the maximum heat capacity and, therefore, the longest safety period in case of accidental breakdown.

In the development of apparatus for the drying of plasma, recent experimental work has shown that the terrifically low temperatures which have been used aren't necessary, Dr. Strumia declared.

It became evident that no sufficient reason could be given for the necessity of employing very low temperatures for water vapor condensation in order to obtain a residual moisture of less than 1%. The working of the new apparatus now being used at Bryn Mawr hospital is based on these fundamental principles which we have demonstrated beyond doubt.

1. That the temperature of freezing of plasma has little or no effect, within the experimental limits (-4° to -98° F.) on the quality of the final product;

2. That the temperature at which water vapor condensation is carried out is not critical within the experimental limits (-22° to -98° F.)

The practical reasons for developing a new apparatus capable of operating at higher temperatures than those previously employed, and considered essential, appear obvious from the simple consideration that the total heat neutralizing capacity of any compressor rapidly drops with the lowering of the temperature at which it operates, Dr. Strumia explained.

The necessity for a very low temperature did not appear necessary, so long as

(1) at any time during the operation the rate of evaporation of the frozen plasma was sufficiently rapid to maintain the material frozen;

(2) the rate of water vapor condensation was sufficiently rapid not to prolong the operation unduly;

(3) the temperature of the condens-

ing surface for a few hours at the end of the operation was sufficiently low to maintain a proper level of water vapor tension so that the residual moisture in the dried plasma would be less than 1%.

The latter condition was readily obtained, since at the end of the operation very little water vapor is condensed, and minimal temperatures compatible with the type of compressor are obtained. Thus, with the apparatus now in use, temperatures of approximately -22° F. are sufficient to obtain dried plasma with a residual moisture of less than 1%.

### Comparison of Processes

In comparing preservation of plasma in the frozen state and by drying, asserted Dr. Strumia, the following considerations are justified:

The difficulties encountered in the storing of citrated blood plasma in the liquid state are completely eliminated by collection of blood, separation and pooling of plasma by a rapid closed method, followed by immediate freezing and preservation in the frozen state.

This method of preservation is both simple and economical and provides optimal preservation for such liable elements as prothrombin, complement, and fibrinogen. Preservation in the frozen state is the method of choice, adequate to supply the majority of needs of most hospitals.

Plasma preserved by freezing may at any time be dried from the frozen state. Dried plasma is of advantage in cases requiring concentration, such as cerebral edema, and in instances necessitating storage, transportation, and administration under adverse conditions.

### Questions and Answers

In the discussion and question and answer period Dr. Strumia declared that blood plasma preservation cabinets should be rated, in terms of their freezing capacity, of the amount of plasma that could be frozen in 6 hours or less; and in storage capacity, on the basis of the amount that could be held in storage for a specified period at not higher than 5° F.

Proper dispersion of the heat in the most rapid time possible is the secret of correct blood plasma freezing, he declared. Containers placed at an angle of 12° bring the best results in both freezing and thawing, he commented.

The time of thawing is critical, but is a problem for the hospital rather than for engineers. The plasma should be thawed in from 12 to 15 minutes for best results.

It isn't necessary to maintain dried plasma under refrigeration, but it must be kept dry.

In answer to a question, Dr. Strumia enumerated these advantages of frozen over dried plasma:

1. It is a better product.
2. It is more economical.
3. It is a more simple process, and easier to administer—less complications.

The only real excuse for dried plasma is in those circumstances in which there are special difficulties in transportation and storage.

Harry Bell, field engineer for the commercial refrigeration department of Servel, Inc., pointed out that plasma will deteriorate at temperatures of 35 to 38° F., and that laws may be passed to prevent its storage at these temperatures.

He warned engineers and commercial refrigeration dealers not to use "any old ice cream cabinet that might be handy," for such jobs, but to study the problems and use a special cabinet, or make one up.

## 3-RING PISTONS In All PAR Models!!!

PAR compressors are really engineered . . . built like a fine automobile. That's why they are equipped with 3-ring pistons . . . one oil and two compression rings. When you buy a PAR unit, you get pistons—not "plungers."

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Chicago brings you TRIPLE SEAL PROTECTION for rotating shafts without the use of bellows. Nothing to crack or get out of order. Works equally well on bent or scored shafts for preventing refrigerant leaks. Manufactured of lesser critical materials, Chicago Seals will solve your shaft seal problems during the war.

**CHICAGO SEAL CO.** 20 North Wacker Drive  
Chicago, Illinois

# Relationship of the Refrigeration Industry With the WPB

## J. M. Fernald, In Address to the A.S.R.E., Tells of Branch Setup, Predicts Product Simplification

By J. M. Fernald, Chief, Air Conditioning and Commercial Refrigeration Branch, War Production Board, Washington, D. C.\*

In order to establish the relationship of this industry with the War Production Board, it seems appropriate to first outline the responsibilities, duties, and powers vested in the Branch by the War Production Board through administrative order. With this as the basis, the effectiveness of the relationship can be fairly accurately defined.

The Administrative Order under which the Branch operates in effect requires the Branch to bring about maximum use of existing industrial capacity within the industry for the production of war material and products for essential civilian use. Maximum assistance is to be rendered to the industry in every phase of its production program, including conversion, financing of new or expanded facilities, problems of labor supply, and the procurement of materials and equipment.

It is necessary to ascertain the existing industrial capacity of the industry which can be made available for war production, and also ascertain opportunities to enlarge the productive capacity of existing plants for war purposes and essential civilian use. When conversion is necessary to obtain maximum use of such capacity for war purposes, we are to bring about such conversion in the shortest possible time. In order to accomplish this objective the Branch must make use of all available services of other Government bureaus and agencies.

As an essential contributing factor to the over-all program it is plain that before the determination of available capacity for war production within the industry can be established, the essential requirements of the industry's regular products must be estimated. Through established channels and procedure within the War Production Board the Branch is obtaining these estimates, which include the requirements of the armed services, maritime, treasury, Lend-Lease, and essential civilian requirements. From these figures we should be able to present to the industry the total demand upon them for their regular products.

### Capacity vs. Demand

At this time I might say that in the placing of these requirements, serious consideration will be given to the use of facilities in definitely established loose-labor areas.

It is impossible at the moment to state what the requirement will be generally. We do know that it will vary widely, depending upon the type of products involved. Already we have found that there is a shortage of production capacity available for some of the large industrial equipment, due to the fact that the facilities involved were available and put in use for war material before the demand for the refrigeration items had developed.

Considering this situation, I want to assure the industry that the question of available capacity is receiving our most careful consideration. To the best of our ability, accurate estimates of essential requirements will be obtained before existing production setups will be considered for conversion.

Do not infer that the industry as a whole is in the position of possible under-capacity. This situation mainly affects segments of the industry producing items used extensively by the armed services, war production plants, and most essential civilian requirements. Generally speaking, this includes refrigerating machinery and allied items of the industrial classifications.

In the case of those segments of the industry producing items generally classified as non-essential in terms of the war effort, conversion to war production must be accepted as the only method by which these plants can continue to operate at any substantial rate of production. On

this problem the Branch will render all possible assistance to manufacturers within the industry in connection with their efforts to obtain war material contracts or subcontracts for items that can be produced with their existing facilities, with conversion of their plant or through pooling of their facilities with other plants.

In this process of conversion the situation has been changing from month to month and increasing scarcity of materials for civilian use is decreasing the period of continued production for anything other than essential items. In other words, industries who were curtailed in production a few months ago have had a much longer breathing spell in which to convert than will be the case in the refrigeration industry.

### Conversion Piecemeal

One other point to consider in connection with conversion is that an industry is not converted as such, but conversion is a plant-by-plant process. This is due to the wide variety of war material required, the variable time element of running out the production of normal products and the tooling up for war production items.

We urge the industry, as far as possible, to give fullest consideration to the fact that larger companies having the largest complement of productive facilities will make the utmost use of these facilities for important war material production. To do this they should subcontract to the smaller companies within the industry all work that would use many of their facilities for short runs on such items as repair parts and miscellaneous accessories. In this process the smaller companies and subcontractors should have the use of jigs, fixtures, dies, etc., required for this production.

As to the relationship of the industry to the Branch in all of this activity, I believe it can best be expressed by saying that the Industry Branch is the focal point of contact for each manufacturer within the industry with the War Production Board.

The Branch, through its organizational setup, maintains a staff of trained and experienced personnel who, with the assistance and cooperation of all other War Production Board divisions and bureaus and the armed services, assists the industry in all of its problems.

The organization setup of the Branch will undoubtedly clarify the way all functions are handled.

### Commodity Groups

Although there are actually 12 to 15 general groups of commodities manufactured by the industry, we have made five general groups which are handled by the following five commodity sections of the Branch: Air Conditioning, Commercial and Industrial, Refrigerator, Heat Exchanger, and Accessories. Each of these Sections acts as the focal point for War Production Board contact with all manufacturers having as principal products the commodities assigned to the Section. They are responsible for the proper handling of all problems of this industry segment, including procurement of contracts, subcontracts, labor supply, material, conservation, conversion, plant expansion, and financing.

The four Staff Sections serve all Commodity Sections on the problems of conversion, conservation, priorities, planning, and requirements.

The Conversion Section activity has been generally covered earlier in this article.

The Conservation Section effects, with the assistance of the Bureau of Industrial Conservation, the Materials Division and the design engineers of the industry, maximum saving of material, labor, and production facilities required for the production of all essential commodities produced by the industry. In connection with this activity we are most appreciative of the splendid cooperation evidenced by

the industry in its present voluntary conservation program.

The Priorities Section essentially analyzes and processes all applications for Preference Ratings on PD-1A's, Production Requirement Plan, and projects. At the present time this Section is processing approximately 1,000 PD-1A's per week, and within the next two months will be handling in excess of 500 Production Requirement Plan applications, in view of the fact that the new Limitation Order actually forces producers to the use of this plan.

The Planning and Requirements Section is essentially a clearance section for all data, statistics, reports, etc., the administration of orders and, in general, correlates all activities of the Branch to avoid duplication and conflict in the over-all Branch activity.

In order to coordinate our efforts more closely with all other Divisions and Bureaus a specialist is assigned to the Branch from each of the principal Divisions and Bureaus of the War Production Board. This assignee is actually located in the Branch, although a staff member of the Division making the assignment.

### Use of Field Offices

One other phase of the over-all organizational setup is the newly established policy of decentralizing the War Production Board wherein 13 Regional offices have been set up to cover the entire country. At this time, the extent to which this decentralization will include industry trained specialists on the Regional office staff has not been decided. However, the Regional and Field offices are an important point of con-

tact for many concerns in our industry; specifically, those concerns who have been curtailed in production and have limited facilities for the production of war materials. The Field offices should be of great assistance in connection with subcontracting work that they might handle.

With reference to orders issued and in process, the Emergency Service Order is now effective and you all know the value of this order. Any delay in the processing of certification of service agencies will not handicap the immediate benefits of the order. Due to the fact that this order establishes a qualification of rating for emergency service, immediate action can always be obtained through telegraphic requests to Washington. Essentially, the certifying of service agencies simplifies the obtaining of service material on the large number of minor items that are required throughout the country from day to day, especially during the summer months.

Our General Limitation Order, released and effective May 15, carried with it an article giving a general outline of what is to be considered established essential end use in the administration of this order.

### Simplification Plans

Simplification Orders for all industry products will be covered by a General Simplification Order. Supplementary schedules will be issued as rapidly as the simplification program is developed for each commodity item. Present schedules in process include water coolers, tubing, valves, compressors, and condensing units. In connection with the Simplification

Orders, I want to call your particular attention to the fact that a thorough discussion is held with Industry Advisory Committees before the final order is prepared, thereby giving industry every opportunity to present its side of the picture.

Undoubtedly, many questions will come to mind as to other important factors in our relationship that have not yet been touched on in this talk. It is our intention to interest ourselves in every problem that comes up and, to the best of our ability, clarify all issues. As we become better staffed, we shall be able to handle these problems more efficiently.

The industry has shown real progress in their efforts for war production since Pearl Harbor. Prior to that time the industry as a whole was selling the majority of its products on unrated orders. General Limitation Orders of all kinds will now, of course, eliminate this, and the next few months will be a period of difficult adjustment for a great many manufacturers in the industry.

*For Defense*

**CORDLEY**

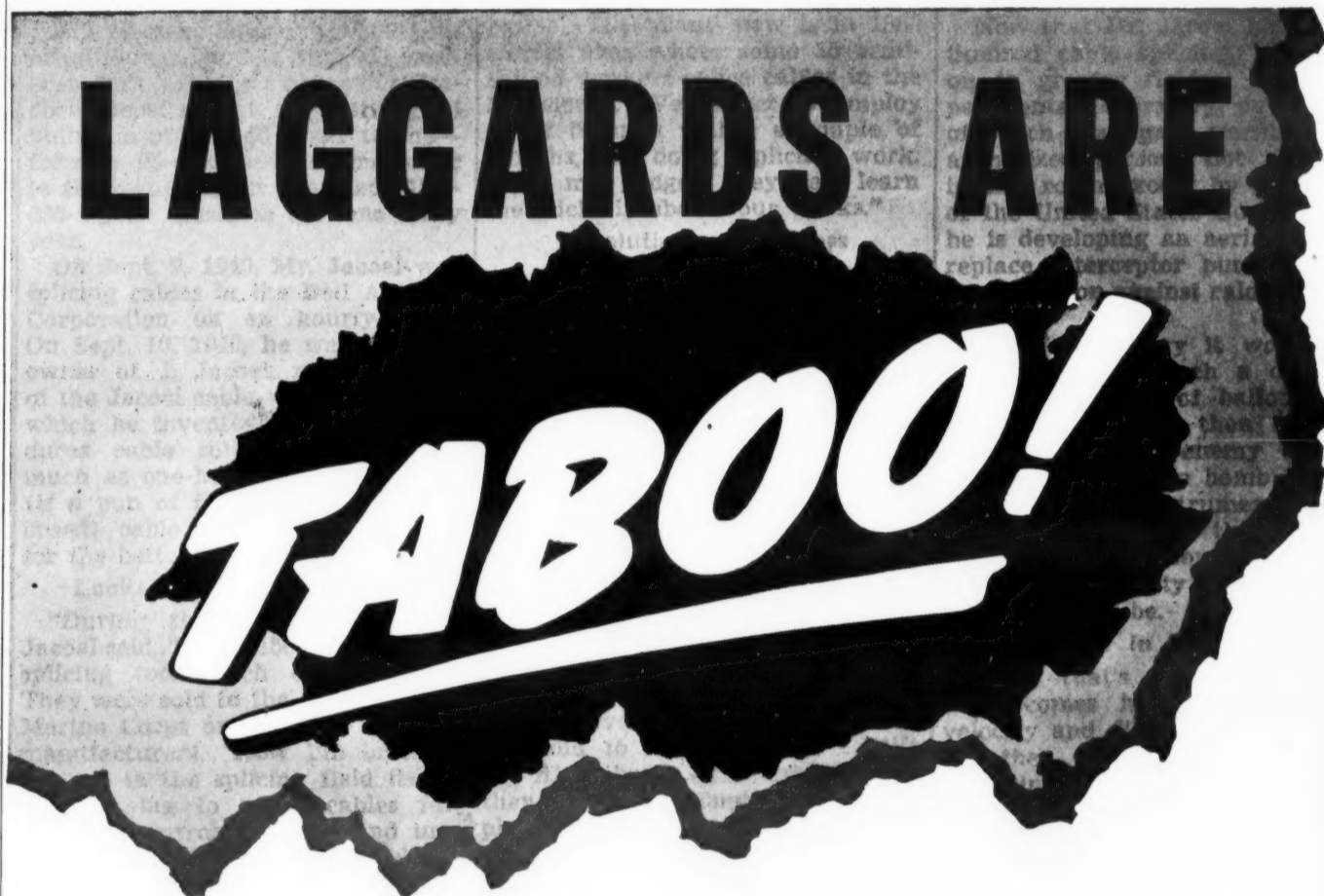
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NEW YORK



With the defense program going full blast, the great army of civilian workers and military men must be fed. This requires ample food storage facilities and proper refrigeration equipment to prevent food spoilage. Worn out, obsolete condensing units that lag on the job providing poor refrigeration are taboo.

Brunner condensing units provide dependable refrigeration and protect foods from spoilage. Manufactured under rigid control, by experi-

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Brunner condensing units are available in air and water cooled models for 1/4 to 25 tons of refrigeration. Write for fully illustrated catalog today. Brunner Manufacturing Company, Utica, New York, U. S. A.



### CONDENSING UNITS

#### BRUNNER MODEL A-33

1/2 h. p. air cooled condensing unit, ideal for small display cases, cooling cabinets and boxes.



\*Address before 29th Spring meeting of the American Society of Refrigerating Engineers, Skytop, Pa., June 8, 1942.

# Air Conditioning & REFRIGERATION NEWS

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F. M. COCKRELL, Founder

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## Refrigeration Will Help Win the War

## OPA Price Schedule On Used Boxes Kills Sales

NOT in some months has this office been deluged with so many letters, phone calls, and personal communications on any particular subject as it has since dealers began to examine the OPA price schedule on used refrigerators. And that is something, too, because the editors normally spend half their time talking or writing to subscribers who have questions to ask.

The universal story is that there is no hope of rehabilitating used refrigerators and reselling them under the OPA price ceilings at a profit. Quoting Samuel S. Vineberg of the Electric Association of the Niagara Frontier:

"Naturally, dealers will not take up the possibility of renovating used appliances and selling them in order that they might maintain a volume of business sufficient to keep them in business throughout the emergency, if they cannot make a profit."

These price ceilings were based on the Philadelphia Blue Book, which was not a compilation of retail selling prices, but a schedule of trade-in buying prices. In a way, dealers are here caught on the horns of their own dilemma, because these prices were purposely set low so that the dealer could offer more, and thus make the prospect feel that he was getting a bargain.

This was the universal practice in the automobile industry, and was based on a simple fact of human nature. Some might question the soundness of the practice; but for our purposes here, we cannot overlook the fact that the "book" prices were low compared to actual prices.

In addition, the cost of repairing these refrigerators has gone up sharply. Refrigeration servicemen were a dime a dozen last year. Now they're scarcer than new tires. They've been grabbed up at high rates of pay by armament industries. To keep a refrigeration serviceman now is truly expensive, and is a real problem.

Result: under the present scale of allowable prices, there will be darned few used refrigerators sold. The American public needs them, because no new ones are being produced. Defense workers, in particular, need them.

As matters stand now, dealers unanimously assure us that the used refrigerator business is dead for the duration. Nobody is going to recondition them or sell them.

Instead of providing the means for keeping numbers of dealers in business—with resulting economic contributions to their communities and to the nation; instead of providing needed products to the American workingmen; instead of curbing inflation by increasing the supply of goods for sale, the OPA has unwittingly choked a business and a market to death.

Thus, instead of combatting inflation, in this case the OPA has abetted it.

We are all heartily in favor of the gallant attempt being made by the harassed OPA to hold down our bursting price structure. We also know that the OPA is sympathetic to hardship cases, for they realize their job is so mighty that inequities are bound to occur.

Here is a hardship case. The facts warrant review of the decision. And, since so many of our subscribers seem to consider the NEWS their friend at court, we respectfully request the several men in OPA who read the NEWS to grant a hearing to a representative group of dealers. The figures they can present will prove to be revealing.

## LETTERS

### LEGAL PRECEDENT FOR BREAKING DEALER LEASES

(—) Electrical Co.  
(—), Kan.

Editor:

A short time ago you published something in your paper about electrical dealers not having to pay rent if they were forced out of business by not getting products.

We would like to have the complete setup, docket No. or whatever it is that tells where this can be found so an attorney could find it here.

We are in the electrical and refrigeration business here and have been for years, but this is a small town and we have been badly hit by so many going to the defense centers.

Last summer we rented the building that we are now in for five years. First we had part of our men and all our salesmen taken by the draft, then we could not get products, and now we have practically nothing to sell and our rent is at a high peak.

If our service men are not pulled out we can survive I think, but if they have to leave soon, as it now looks like they will, we cannot stand the rent. The landlord is a very wealthy man and cares for no one and if we are forced out of business he will demand the rent just the same, as he has done this with others and we know he will do it with us as we have some money but hate to have to pay it out in rent, if we are forced out of business.

Please give us everything that you can on this so if we are completely forced out we will know what to tell the attorney on this. We will gladly stay and pay the rent if we can keep our mechanics but we have been losing about \$200 a month now for the last seven months but are hoping that service will pick up but it is far below last year yet and we are paying a third more in wages to the

## They'll Do It Every Time

By Jimmy Hatlo



men we have left. Any help you can give us will be appreciated.

Answer: The story of the dealer in Elmhurst, Long Island who wanted to break his lease because his products were frozen by government priorities appeared in the April 6 issue of AIR CONDITIONING & REFRIGERATION NEWS. This was the case of Hannan Sales & Service, Inc. versus Colonial Operation Corp. of Manhattan, and the court has sent me these notations as references to the case. I trust that your lawyer can decipher them:

"See 34 N.Y.S. 2nd page 116  
"Advance sheets May 5/42  
"Law Journal May 15/42"

### TRAITORS

New Braunfels, Tex.

Editor:

Enclosed is my check for two years additional subscription for your publication. I am indeed grateful to you for the information I am receiving in your valued NEWS. It has been a great help to me during these trying times in obtaining proper information on matters in line with the refrigeration business.

However, I regret the deplorable conditions in some of the manufacturers taking advantage of the Government in the manufacture of appliances.

Being a veteran of the World War, I fully realize that we are under the close subordination to our government in all lines and I term these violators of the government measures as Benedict Arnolds in the commercial manufacturing world, and if within my power (as we are in the state of war) these violators would be tried for treason and administered the maximum penalty for their offenses and not only receive a reprimand to further their hoarding greed which makes it a hardship on any patriotic American.

E. A. SCHUMANN,  
Westinghouse appliance dealer  
and Captain Infantry, Commanding  
Co. C, 36th Battalion, Texas  
Defense Guard

### HANSEN TELLS OF WARTIME LIFE IN AUSTRALIA

F. C. Lovelock Pty. Ltd.  
16-20 Young St.  
Sydney, Australia

Editor:

I was very pleased indeed to receive your letter of Jan. 23 (it arrived here on March 23). Thank you ever so much for your note and for the encouraging words contained therein.

We have out here already had specific evidence of the truth of the assurances made in your letter and as announcements of the arrival in Australia of American men and equipment have been published widely in the press, I feel sure that I am not contravening any censorship regulations in telling you at this stage how thrilled we are in knowing that Uncle Sam, in realising how important it is that Australia be saved, is sending everything he possibly can to our aid. Personally, I and all other Australians who have visited the U.S.A. have an added interest in the arrival of your boys—you see, we can speak your language, and it is indeed very pleasing for us to join together over a couple of noddies and swap stories about our two great countries. I have been hoping that amongst the fellows who have already arrived there would be one or two of some of our very intimate American friends. So far we have not been able to locate any, but it may be that amongst future arrivals there will be someone who, as soon as possible after landing in this country, will be getting on the telephone and thrilling us with "Hello, this is so-and-so from Detroit, Chicago, L.A., or N.Y."



As you say, the future of Australia and the U.S.A. is a twin future. During a discussion we had the other evening in this connection, someone said "I wonder when it is all over how many of the Yanks will be going back home," and so it is. Your fellows in the main seem to be right at home out here, and from the opinions expressed by the great majority, I would say that large numbers of the U.S.A. troops will be quite content to stay in Australia, and even if they do want to go back to their own country for domestic reasons, will lose no time in returning to the newly "discovered" territory down under. I guess we want them, too—the salvation of the future Australia lies in being populated by real people and people we have learned to understand and can live with, in peace, love, and harmony.

I was just about to ask how things were going along with you. On second thoughts I realise that you must be in pretty well the same boat as we are out here—that is, you are flat out on defence, working ever so much harder than you ever worked in your life and finding no time to let up at all. There may be some little difference between Sydney and Detroit in the modes of living, inasmuch as we here in Sydney are living under almost front line conditions—that is, civilian front line conditions. We are living under black-out conditions; we have all been busy sand-bagging, trench-digging, window-shatter-proofing, etc. and I would say we are now waiting and ready to repel any probable invader. We are cognisant of the fact that air blitzes are likely at any time but in my humble opinion I do not think we will, for some time at least, have any attempted invasion by the Japs—that is, here in Sydney, although it is quite on the cards that the slit eyes may have a lash at invasion of the northern part of Australia. If they have such ideas then they will have to get busy very soon, as I think that this is definitely an occasion where we can say that time is on our side. Perhaps the Jap is also awake to this fact and is doing his damndest in preparing something for us.

How is the good wife and "family"? I hope you are all well and that the same state of affairs exists where all my other good friends are concerned at the Business News Publishing Co. Please give them all my kindest regards and when time permits write again and give me all the doings.

Cheerio for the present, and with tons of the best,

FRANK HANSEN

### BLOOD BANK REFRIGERATION

S & S Refrigeration Service  
3035 Hudson Blvd.  
Jersey City, N. J.

Editor:

In a few of your past editions, you have published a series of articles in regard to "blood bank refrigeration." We are in need of this information, and would appreciate it if you could send us these copies or else the individual articles. We would also appreciate your sending us any additional literature and information in regards to blood plasma.

PHILIP SALZMAN

Answer: In this issue you will find a very enlightening article on blood bank refrigeration. The following articles have also recently appeared in AIR CONDITIONING & REFRIGERATION NEWS on blood bank refrigeration: May 11, page 11—"Engineers Devise a Foolproof System to Safeguard Contents of Blood Bank—Refrigeration Technicians Construct Alarm System to Warn of Critical Rise in Temperature." April 13, page 13—"Refrigeration Is All-Important in the Procuring of New 'Liquid' Blood Plasma—Advantage Over 'Dry' Type of Plasma Is Claimed." February 11, page 7—"Standard Cabinets Prove Adaptability as 'Blood Banks.'"

## What Dealers Are Doing About Merchandise Shortages

### Dealer Uses Unsold Appliances to Equip Restaurant Near War Plant & Teaches His Staff to Operate It

VICKSBURG, Miss.—When appliance dealer E. H. Montgomery, head of Roslyn Electric Co. here discovered that shortages in supplies and curtailed volume on commercial refrigeration wasn't going to be sufficient to retain his sales staff, he didn't discharge the men, or attempt to find substitutes which would only "prolong the agony" for awhile. Instead, he converted his entire employee staff over to restaurant-operators, and will continue to sell whatever merchandise can be obtained himself.

Roslyn Electric Co., a G-E dealership, has sold Vicksburg's outstanding volume of commercial equipment from display cases to large storage coolers during the past few years, and also has an air conditioning department which completed its last installation in April. When these transactions were wound up, Mr.

Montgomery found he had in stock several large refrigerators, bottle boxes, etc., gas ranges, and other appliances suitable for opening a restaurant.

So equipped, he rented a small building near one of Vicksburg's rapidly growing defense factories, installed all of his own refrigeration and cooking equipment, and then trained two salesmen of the firm to act respectively as cook and waiter. The colored porter who formerly cleaned up appliances on display is now a busboy in the restaurant—which incidentally is showing a handsome profit.

"I am going to keep my men after the war is over," Mr. Montgomery said, "and my whole staff will remain happy in the restaurant for the duration."

### Greeting Card Display Takes Over Spot Used for New Refrigerators

EL DORADO, Ark.—Just about the most unusual line which an appliance dealer can "substitute" for major appliances is sold by the Electric Shop, appliance dealership here, which carries a \$500 inventory of greeting cards, displays them in the space formerly occupied by refrigerators, and has produced a profitable volume from the outset.

One wall of the store about 35 feet long with a single counter is given over to a complete choice of greeting cards in blonde wood display cases provided by the manufacturer. The entire stock is on hand at all times, with a simple perpetual inventory system whereby Owner A. D. Andrews re-orders as soon as the stock goes down to a minimum number of cards of each style. The store tries to sell 25 to 50 cent cards for the most part, since the largest profit is in these brackets. A girl bookkeeper does all the selling.

"Greeting cards increased my electrical sales by 40%," Andrews says, "and they pay the rent, keep the store open, and bring in a lot of customers."

### Record Booths Take Over Appliance Dept.

KANSAS CITY, Mo.—The Vandenberg Furniture Co., appliance and furniture store here, has remodeled its former appliance department into a phonograph record room complete with eight listening booths and has devoted a full window to record displays. The store is accepting old records for melting.

### Toledo Store Adds Sinks, Radios, Pianos to Line

TOLEDO—The Lion Store here has protected its position and incomes of salesmen recently by adding Youngstown and Sellers wood and steel sinks and cabinets, G-E radio-phonograph combinations, and two nationally advertised lines of pianos.

### Homes Vacated by War Workers Are Source of Used Refrigerators

ST. LOUIS—Appliance dealers anxious to obtain appliances for reconditioning and resale may find them in wholesale lots in "evacuated" defense districts, according to Tommy Morton, head of the Morton Appliance Co. on Union Avenue here. When St. Louis' 110 million dollar munitions plant was recently completed, more than 15,000 workers who had been active on construction moved on to other cities. Morton Appliance Co. made house to house calls buying appliances for six weeks, and bought more than 400 refrigerators in this way.

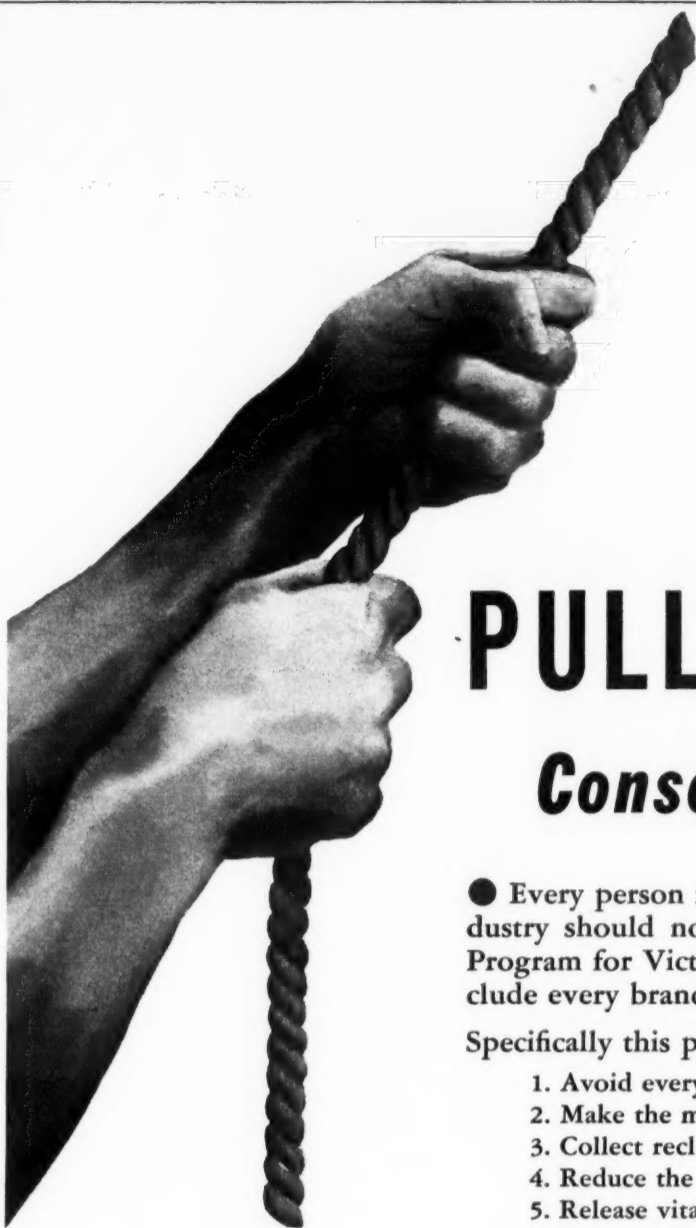
### Distributor Issues Book On Substitute Lines

SAN FRANCISCO—The first practical "substitute line handbook" to come out of the war for appliance dealers has just been released by Thompson & Holmes, Philco distributor here. The new book, wire bound and constructed of heavy cardboard, lists page by page the numerous side-lines of the company, and has a complete analysis of its probable success from which Philco appliance dealers can select. The pages discuss in turn linoleum, rugs, small appliances, blackout materials, paint, hardware, wallpaper, etc. Dealer demand wiped out the first release of the handbook in a few days, according to N. J. Etienne, sales manager of the refrigeration department.

### Dealer in War Boom Area Adds To Space for Appliances

CLEWISTON, Fla.—Already one of the largest appliance dealerships in this part of the state, the Clewiston Appliance & Furniture Co. here is adding a 500-square foot addition to its building.

The new space, according to E. M. Cornette, owner, will make it possible for the store to show appliances and furniture simultaneously, for the benefit of defense workers.



## LET'S PULL TOGETHER Conserve for Victory

● Every person in the air conditioning and refrigeration industry should now be enlisted and actively promoting the Program for Victory, sponsored by 12 associations which include every branch of the business.

Specifically this program calls on us all to:

1. Avoid every waste of essential materials and supplies.
2. Make the most of existing equipment.
3. Collect reclaimable metal for wartime use.
4. Reduce the number of models now being produced.
5. Release vital war metals by finding substitutes.
6. Co-operate in all possible ways with governmental agencies in conserving equipment, materials and power.

Penn has subscribed wholeheartedly to the objectives of this program. We have pledged to do our part and we feel sure you will do your share. Automatic controls must be skillfully and thriftily serviced. Where they cannot be made to function efficiently they may be replaced. Under established priority rules, Penn is prepared to supply refrigeration controls for those that need to be replaced.

To manufacturers, distributors, service and installation men we again pledge our fullest co-operation in meeting the present emergency. Penn Electric Switch Co., Goshen, Indiana.

★  
Manufacturers, distributors and jobbers can spread the gospel of this Program to their service outlets with Penn's folder "Enlist for Victory." Available free... send for details.  
★



### Switches from Tires to Appliances to Furniture To Keep in Business

MEMPHIS, Tenn.—Operating three entirely different businesses in one year in the same building is the amusing story of Julien Hassel, Philco appliance dealer here, whose store at Fourth and Monroe has put on three "new faces" in that time.

Originally a tire dealer, Mr. Hassel sold a complete line of passenger and truck tires under the name Service Tire Co. When tire rationing came along, he tossed out the remaining tire stock, and went into the appliance business. In three months, the appliance stock was likewise curtailed; Mr. Hassel couldn't get more stock, and changed again.

This time, the name is Home Furnishing Co., Inc., changed from Hassel Appliance Co., and the store is filled with furniture.

### Sells Last Refrigerator, Then Converts Store

TURLOCK, Calif.—Doggedly hanging on to his appliance store despite selling the last refrigerator six weeks ago, Leroy Julian of the Julian Appliance Co. at 311 Main street here has put in a complete musical novelty, gift shop, infant department.

### Reconditioned Appliances Featured by New Dealer

BURNEY, Calif.—A new "war baby" appliance store which will open with 10 new refrigerators and 50 reconditioned trade-ins here is the Boswell Appliance Store.

Included in the merchandise lines which C. H. Boswell and Raymond Ayers, partners, believe will sell profitably through the war, are reconditioned appliances of all types.

### Distributor Enlarges Service Shop to Help Dealer Keep Going

SAN FRANCISCO—The Leo J. Meyberg Co., distributor for electric appliances here, has set up a huge new service shop for the benefit of San Francisco appliance dealers who want to stay in business but cannot obtain parts or equipment for service work.

The new building is at 1375 Mission Street, and is split into service departments for radio, refrigerator, ranges, washers, ironers and small appliance service. Flat rates will be quoted to all dealers for service at top speed.

"The idea is to aid firms which have no mechanics or equipment," A. M. Lancaster, salesmanager, stated, "and to give them a chance to sell service work even without facilities."

**DUPONT**  
**Artic**  
For information about nearest source of supply, write to  
ELECTROCHEMICALS DEPARTMENT  
E. I. DU PONT DE NEMOURS & CO. (INC.)  
Wilmington, Delaware  
or National Ammonia Division  
Frankford P. O. Philadelphia, Pa.

**TO ASSURE QUICKER DELIVERIES  
RETURN EMPTY CYLINDERS PROMPTLY!**

There is a shortage of cylinders for refrigerants. If you will return your "Artic" Methyl Chloride containers as soon as empty, your deposits will be

repaid immediately—and you will prevent delays in shipments of "Artic" to your shop! Round up any empties you have now and ship them back!



# How Air Conditioning of Blast Furnaces Can Speed War Effort

Carrier Engineer Presents the Case on Basis of Experience with Existing Installations

SKYTOP, Pa.—The "economics" of air conditioning for blast furnace steel production (dry blast), with particular respect to what air conditioning of blast furnaces can mean to the War effort, was described by R. V.D. Dunne of the Carrier Corp. to the recent national meeting of the A.S.R.E. here on the basis of experience that is now available from operating installations.

Mr. Dunne's talk aroused a lively discussion pro and con about the actual benefits of air conditioning in this field, and whether or not it was up to the air conditioning industry to make the claims for it, or to let them be forthcoming from the steel industry. An essential point made by Mr. Dunne was that the benefits in actual practice far outweighed those conjured up in theoretical consideration.

In order to understand how air conditioning can increase the production and improve the quality of iron, and at the same time reduce the consumption of coke, it is essential that we understand certain basic elements of a blast furnace.

## APPLICATION OF DRY BLAST TO TYPICAL FURNACE

The furnace or stack is divided into four main parts; hearth, bosh, stack, and top. The dimensions of a typical 1,000-ton furnace are as follows:

The hearth is 12 ft. deep and has an inside diameter of 25 ft.

The bosh is 10 ft. in depth and gradually increases in diameter until it reaches 28 ft. at the mantle which supports the stack and furnace top.

The stack has vertical walls for about 10 ft. and then, for about 50 ft., gradually tapers until its diameter is reduced to approximately 19 ft. From that point upward for another 7 ft. the walls are again vertical.

Capping the stack is the furnace top with a height of 13 ft.

Into this vast interior during each

24-hr. period is dumped a charge of ore, coke, and limestone in the following typical proportions:

Ore .....	1,775 tons
Coke .....	850 tons
Limestone .....	385 tons

Total Charge .. 3,010 tons

A furnace of this rating would require about 80,000 c.f.m. of wind, and thus a fourth raw material in the amount of 4,390 tons is to be added to the above charge. This raw material accounts for over 59% of the furnace charge and its composition is subject to the extreme daily fluctuations in moisture content.

These variations will frequently exceed 4 or 5 grains per cu. ft. per 24 hour day, and may occasionally be as much as 7 grains in each of the three major steel producing areas in the country. The amount of water introduced at the tuyeres amounts to more than 3,000 tons in the north and in excess of 7,500 tons in the south in a typical year's operation.

## PREPARATION OF CHARGE

Consider for a moment, said Mr. Dunne, the care exercised in the selection and handling of the raw materials that go to make up a furnace charge. Uniformity is largely obtained by grading the ores. This is done by mixing lean ore having a relatively high silica content with rich ores low in silica. Ore is beneficiated by crushing and screening.

Sintering, a process by which the fines and flue dust are converted into a porous, compact, and graded structure through partial fusion, is becoming more widely accepted and the coal from which the coke is made is washed. Coke analysis is given increasing attention. Uniformity in size and physical properties such as strength, degree of fixed carbon and volatile matter, are of great importance in contributing to smooth furnace operation.

Contrast this care in the treatment of the above raw materials and the regular analysis of coke and ore with the veritable dumping of uncontrolled quantities of water into one of the most important areas of reduction in the furnace—the smelting or tuyere zone. It is here that regularity of temperature is of greatest importance.

## HEAT REQUIREMENTS

It is recognized that certain functions of the smelting process can only be carried out above a certain critical temperature, which is the free-running temperature of the slag, and it follows that it is the heat available above this temperature and not the total heat developed in the furnace that controls this process, Mr. Dunne explained.

As more or less heat is required for the dissociation of moisture in the tuyere zone, either more coke must be added or higher stove heats applied as the amount of moisture increases.

The first is impractical, as obviously it would be impossible to burden for vagaries of weather from 12 to 15 hours in advance, and the second is subject to guesswork and human fallibility. The result of a "cold" smelting zone is a sluggish slag, a slower and more irregular reduction and furnace operation, and an increase in coke consumption.

A variation of 25° to 50° may seem inconsequential when discussing temperatures of 2700° or 3000° F.; however, variations of this magnitude and greater can be caused by moisture in the blast and actually account for 8.5 to 17.0% and more in temperature variation of the normal 300° working range. This does not promote furnace or production regularity nor does it provide for fuel economy or uniformity of product.

## UNIFORM COMPOSITION OF IRON REQUIRED

The primary requirement for iron at the cast is that it be uniform in composition whether it is to be used for foundry, Bessemer converter, or open hearth. Modern steel-making practice demands that the iron be of uniform composition and of high and uniform temperature.

Thus it can be seen in the few above mentioned instances, and there are many more, that the raw materials entering the furnace are carefully controlled to provide a more efficient operation, and a better product. Certainly positive moisture control of the air, which weighs more than all other materials combined, is essential toward the accomplishment of the goal, Mr. Dunne asserted.

The initial concept of the function of dry blast was the removal of moisture from the blast and thereby saving the fuel that would be required for dissociating the water vapor entering the furnace with the blast.

That the presence of moisture does have an appreciable effect upon the operation of the furnace is attested by the fact that most operators try to outguess the weather by increasing the blast temperature approximately 50° for every increase of one grain of moisture per cubic foot of air entering the blowing engine.

## DRY BLAST HELPS

Some measure of the difficulty in accomplishing the desired results can be recognized when it is realized that it takes from 12 to 15 hours for a single charge to be reduced. Dry blast, of course, eliminates this operating hazard. It now remains to evaluate the magnitude of the effect of moisture removal alone and compare the theoretical results with those obtained in actual operation over a period of years.

The expected coke saving per grain of moisture removed may be calculated. Continuing the above example, if 4.17 lb. of air having a volume of 13.8 cu. ft. per lb. are required to reduce 1 lb. of iron, one grain of moisture would weigh 0.00822 lb. The pounds of carbon required to decompose 1 lb. of water, together with that required to raise the materials to a nominal smelting zone temperature of 2732° F., is 2.21. Therefore the weight of carbon which could be saved by the removal, or the extra weight which would have to be used by the addition of 1 grain of moisture per cu. ft. of air, would be 0.0182 lb., or 41.36 lb. of coke per ton of iron per grain removed.

On this basis there is a question as to the economic justification of dry blast even in the most humid areas. Excluding all credit to uniformity and smoothness of furnace operation, in

the typical furnace the overall yearly increase in iron production would be approximately 3% and the decrease in coke consumption about 2.5%.

Actual operating results show much more advantageous increases and savings, declared Mr. Dunne. These departures from theoretical calculations must be almost entirely due to the uniformity and smoothness of furnace operation resulting from dry blast. In brief—the unorthodox is uncovered.

It is practically impossible to obtain "before and after" operating data that are generally acceptable. It is recognized that ores are particularly subject to variation. Sintering and other practices may vary from season to season. Blowers may be down temporarily for repairs and other mechanical failures may occur, but the fact remains that increases in production of 20% and decreases in coke consumption of 13% have been acknowledged as annual results.

## VARIOUS BENEFITS OF AIR CONDITIONING

These results are only a part of the benefits of air conditioning, the speaker said. An important by-product is closer silicon control. This is particularly important to the open hearth operator. Consider the make-up of a typical open hearth charge. Approximately 45% is scrap; 9% is cold pig; 36% is melted iron from mixers; 9% is limestone; and the remaining 1% is made up of fluorspar and iron ore. It should be recognized that the proportions of the charge will vary materially.

With the present shortage of scrap, charges of pig and hot metal as high as 75% are not uncommon. In one instance we understand that the entire metal charge was taken directly from the blast furnace. This charge must be well balanced to insure smooth open hearth furnace operation. The amount of ore charged varies with the type of scrap and also with the silicon content of the pig. There are other variations affecting the operation of the open hearth furnace, but the control of silicon content of the pig and hot metal is one of the results of dry blast.

A further advantage in the control and lowering of the silicon content of the iron at the blast furnace is that less limestone is needed in the open hearth charge. With a decrease in the charge of limestone there is a

reduction in heat time, and as the limestone consumption is dependent, to a large degree, upon the amount of silicon, these two factors are doubtless interrelated.

The saving in heat time and limestone may vary under different operating conditions. However, in one plant using a minimum of 55% hot metal in the charge, it was indicated that the reduction of heat time to be expected from a decrease in limestone burden is about 10 minutes for each 20-lb. decrease in stone. Another way of expressing this would be that approximately 60 lb. of limestone is saved per net ton of ingots with a heat time reduction of 30 minutes.

Dry blast reduces the wide fluctuation or swings in the silicon in the hot metal or cast and thereby assists the open hearth operator in control of the burden. It is obvious, therefore, that the matter of control becomes all the more important with the present-day necessity of increasing the hot metal proportion of the charge.

## SAVINGS OF COKE

There is still another important indirect contribution made by dry blast to the open hearth process. It is recognized that the higher the proportion of hot metal and cold pig in the charge, the longer the heat and the greater the amount of fuel required. Therefore, the air conditioned blast furnace not only provides a purer metal but as it saves coke in the process, the coal formerly used for coking for the blast furnace may be used instead for manufacturing gas for the open hearth.

The magnitude of the effect of dry blast on steel production may be revealed when it is realized that as of June 30, 1941, there were 229 stacks in the United States having a rated annual capacity of 57,937,170 net tons.

It is reasonable to assume that all of these furnaces should not be conditioned, said Mr. Dunne; however, there are some 50 or more furnaces whose average rated capacity will equal or exceed 1,000 net tons each. Assume that these stacks are conditioned and that a conservative figure of 10% increase in production is realized.

This would amount to 1,800,000 tons extra steel per year obtained by providing dry blast for 50 existing furnaces. The cost of the condition—

(Concluded on Page 11, Column 1)

## REPUTATION COMES TO THE FRONT

● Mueller Brass Co. valves, fittings and accessories have always had an enviable reputation for reliability, efficiency and long service life.

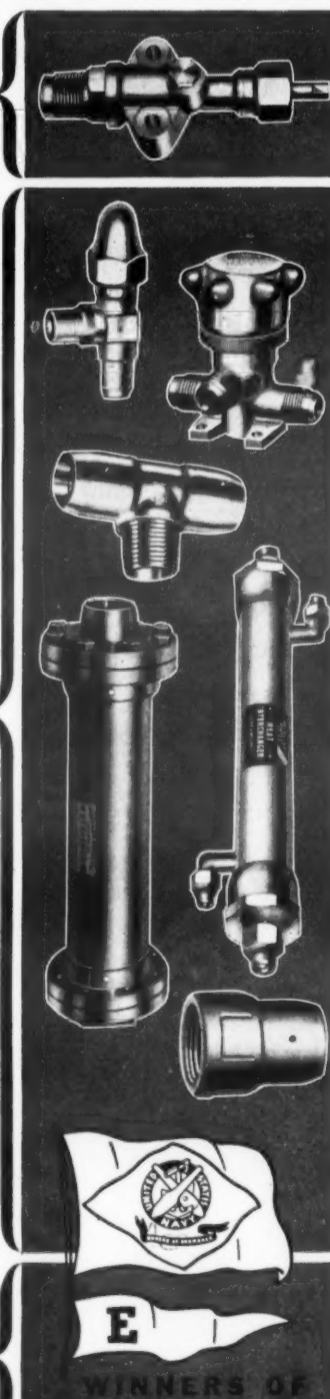
Since our ability to produce and supply these items is so necessarily restricted, due to our country's war effort, reputation is doubly important.

Although there are many refrigeration products that you will be unable to procure, you can, in many cases, devise ways and means of accomplishing the purpose through your own knowledge and skill. Conservation, too, is highly important and there are many items which can be repaired and used again and again.

Naturally, our armed forces are getting first call on our material resources and man power, but we can still supply many of the parts you may need—and to the extent that we are permitted, we shall continue to produce standard essentials for the Refrigeration Trade.

Mueller Brass Co. products have a built-in reputation for quality and long service life. If you have a problem, write us. We will do our utmost to help.

MUELLER BRASS CO.  
PORT HURON, MICHIGAN



# Sell

## "TROUBLE PREVENTION SERVICE"

You've a bigger job than just repairing old refrigerators! You must keep them from becoming "old" refrigerators—by selling your customers the type of service that prevents trouble and breakdowns. They can't take chances on food spoilage—so they must depend on you to lead them.

Back up your service with Davison's Silica Gel—the drying agent that is master over moisture. Let manufacturers and performance-wise service engineers guide you—they agree that Davison's Silica Gel gives permanent protection against moisture—the major source of refrigeration troubles.

It's easy to see why Davison's Silica Gel is the industry's preferred drying agent. Its capacity is 1½ to 2 times as much as other drying agents. It acts instantaneously. It removes acids and corrosive compounds. It does not dust nor powder. It has proved itself in the field.

See your jobber. Ask him for dehydrators charged with Silica Gel or Silica Gel in bulk for refill.

**Keep 'em RUNNING WITH DAVISON'S SILICA GEL**

# DAVISON'S SILICA GEL

*Moisture's Master*

## THE DAVISON CHEMICAL CORPORATION

Silica Gel Department  
BALTIMORE • MARYLAND

## Air Conditioning of 50 Blast Furnaces Would Boost Output by 5 Furnaces, Dunne Tells ASRE at Spring Meeting

(Concluded from Page 10, Column 5) ing equipment to equip these furnaces would be from \$6,500,000 to \$8,000,000 and it would require approximately 3,000 tons of steel. Four to eight months would be required by the refrigeration industry to provide the equipment for these furnaces.

At the equally conservative estimate of 6.5% reduction in coke consumption, there would be a saving of over 1,000,000 tons of coke even when allowing for the increase in iron production. This is enough coke to run three furnaces for a year.

### RESULTS FROM 50 AIR CONDITIONED FURNACES

In order to obtain an increase in production equivalent to that produced by 50 air conditioned furnaces, it would be necessary to build five new furnaces. This calls for a capital expenditure of from \$15,000,000 to \$20,000,000 and would require from 18 to 24 months to build. The amount of steel required would approximate 45,000 tons, including that required for plates, reinforcing, structural, rails, and coke ovens. It does not include that required for the turbo-compressors and condensers nor the boilers behind the furnaces.

In order to build these five furnaces it is estimated that over 10,000 tons of steel plate are required. Approximately 400 tons of plate would be needed for the air conditioning equipment for 50 furnaces.

Obviously air conditioning cannot do the entire job that is necessary for the aggressive and successful prosecution of this war. At the present time the steel expansion program indicates that there are 24 new stacks in the process of building or about to be built. The majority of those who are in a position to know predict that this war will last from three to five years or even longer. From this viewpoint the completion of this project is essential.

In the meantime, because these 50 furnaces are not being air conditioned, steel for minimum of 60,000 30-ton tanks or 900 destroyers or 40 battleships is not being produced while these furnaces are being built.

### DRY BLAST SYSTEM FUNDAMENTALS

There are, at present, three fundamental dry blast systems employed, said Mr. Dunne.

These are the post compression, the chemical pre-compression, and the pre-compression refrigerated system. As yet the latter type is the only one having operating experience in excess of one year. It may be reasonably assumed that on the basis of moisture removal alone the results of all should be comparable.

The post-compression system is sufficiently well known to eliminate the necessity of lengthy description. The dehumidifying chamber is on the compression side of the blower; therefore no saving can be made in blower horsepower, in fact a slight increase is noted due to dehumidifier resistance. Therefore any power for refrigeration or pumping must of necessity be charged directly to the system.

In the case of the chemical pre-compression system there is an increase in the temperature of the air entering the blower, due to the conversion of latent heat into sensible

heat and to some degree upon the heat of solution. The magnitude of this temperature may be controlled during the months of high humidity occurrence by the temperature of the water available for cooling the solution.

As service water at steel plant runs from 70° to 85° F. and higher, and inasmuch as the air entering the blower will exceed this, it is obvious that the saving in blower horsepower, if any, will be negligible. Therefore the steam for reconcentration of the solution, together with the power for the solution pump and reconcentrator fan, are excess costs directly chargeable to the system.

The pre-compression refrigerated dry blast system, through substantiating data supplied by more than eight furnace years of actual operation, has proved that the cost of power and other services is negligible or non-existent, declared Mr. Dunne.

As a matter of record, he said, one installation actually provided a saving in overall power and service economy. This result is due mainly to the reduction in the quantity of steam required for the turbo-blower turbines because of the uniformly low temperature of the air leaving the dehumidifier and entering the turbo-blower. This power saving is normally equal to or in excess of the power required for driving the centrifugal refrigeration machine, chilled water and condenser water pumps, together with the steam or bosh water required for winter rehumidification.

## 17 Appeal Boards To Hear Truck Pleas

WASHINGTON, D. C.—Establishment of 17 Local Appeal Boards in principal regions throughout the country to pass on applications for permission to purchase new trucks was announced today by the Office of Defense Transportation.

The Local Appeal Boards will take over the duties of the special Washington Appeal Board.

Members of the Washington Appeal Board, in a report to the ODT, disclosed that a high percentage of the appeals gave incomplete information and that many applicants engaged in defense work carrying high priorities "took too much for granted" and failed to show actual need in applying for permission to purchase.

It was found that many vehicles which the applicants intended to trade in on new equipment could be rebuilt or repaired, that applications for permission to purchase specially designed equipment were frequently presented on "business as usual" basis rather than need and that there was little indication that those whose applications were rejected had taken steps to attain fuller utilization of their present equipment or to co-operate with other carriers for purposes of conservation.

Local Appeal Boards have been established in Boston, Philadelphia, Atlanta, Columbus, Chicago, Nashville, Kansas City, Little Rock, Fort Worth, Salt Lake City, Denver, Portland, San Francisco, and Los Angeles. Organization of boards in New York, Minneapolis and Charlotte also is under way.

## Bendix Promises Aid On Parts For Dealers

NEW YORK CITY—Bendix Home Appliances, Inc. has declared an initial dividend of 10 cents a share on the 762,640 shares of common stock and 45 cents a share on the 121,840 convertible cumulative participating Class A shares.

Bendix turned out the last laundry machine for the duration on May 7, and has since been converted 100% to war production.

"We will continue to furnish to all authorized dealers, parts and services within the limits of our ability to obtain essential materials, to protect present owners, and maintain our sales outlets after the war," Mr. Sayre declared.

## Filter Cleaning Service Expanded To Care For Most of Dealer's Sales Personnel

KANSAS CITY, Mo.—An unusually profitable development of air conditioning service to supplement limited sales is "Clean Air Filter Service"—a department built up by Marshall Dean, general manager of the Dean Hagney Corp., air conditioning dealer here, from a small sideline to a major business.

Selling air conditioning systems ranging from a 60-ton installation in a famous bowling alley down to two and three-ton jobs for doctors' offices, dentists, etc., Dean-Hagney has designed most of its own jobs to include ductwork for better circulation, and filters for air purification. As many as six salesmen were on the staff selling air conditioning, refrigeration, and plumbing and heating installations. Now that sales of these items have come to a standstill "Clean Air Filter Service" is still an active enough field to keep the business going at full speed.

The service consists of a regularly-scheduled cleaning and replacements of the filters in Kansas City air conditioning systems at a flat price. Formerly, Mr. Dean sold each air conditioning owner separately on the idea of contracting for a service whereby his filters would be cleaned each month at a rate anywhere from 50 cents to \$1 per filter per cleaning.

Now, after a year of steady promotion, demand for this service has grown to the extent that Dean-Hagney has "remodeled" the service after the lines of metropolitan towel or

linen services, who own their own equipment and make a charge for each fresh batch of towels or roller towel.

"We will now own the filters outright," Mr. Dean said, "rendering the service on the basis of 50 cents per filter cleaning charge. We purchased all the filters we sold with systems from their owners after explaining the service, then bought a duplicate stock of new filters for replacement purposes."

Dean-Hagney uses a special panel truck for conducting this unusual sideline, which is operated along with refrigeration and plumbing services, but has its own crew, and a separate workroom in the rear of the building. About 400 customers, including many who bought their original air conditioning installations from some other air conditioning contractor, are on the list; enough to keep a four-man crew busy eight hours a day in filter cleaning.

One salesman spends part of each week in selling the service to air conditioning owners, in six months contacting every system in the city. If he is unable to sell the owner on the first call, he will revisit him simply by beginning on the list of unsold owners.

Included in the customer list are theaters, department stores, banks, dry goods stores, business buildings, and many other air conditioning users.

A white truck, handsomely painted

with "Dean-Hagney Filter Service" on the side panels, has been a booster for the service as a rolling billboard.

The truck carries a full inventory of filters at all times—exchanging a new filter for the dirty one removed from the air conditioning unit at the time the latter is taken out. This saves tires and time, as well as expense. Formerly the filters had to be taken out, rushed to the cleaning plant, and rushed back before the system could be put into efficient operation. Ownership of the filters (with a \$2,000 inventory) put a stop to that.

The Dean-Hagney shop can easily handle 200 filters a day with one man, and can step up to 350 with two. The filter cleaning method is simple, and applicable to Owens Dustop types as well as fibre and all-metal types which can stand submersion in water. A metal band is placed around the cardboard frame, or casing, to protect it during the washing process.

Filters are cleaned first by soaking them in a mild and properly heated solution of tri-sodium phosphate, which dissolves the dirty oil, and removes oxidation from metal parts without affecting spun glass, steel wool, etc. Then they are rinsed with cold water under pressure, and wheeled on a light cart into a room where they are placed in a forced air drying chamber equipped with a 3,000 c.f.m. blower.

About 20 minutes drying time is given, when the filters are removed, placed on a spraying table with a hood, and re-oiled by spraying them with a light oil similar to that specified for the original units.

It requires only a few minutes to clean and dry a bath of 20 filters.

## Today's War Production Has Developed

# New Markets

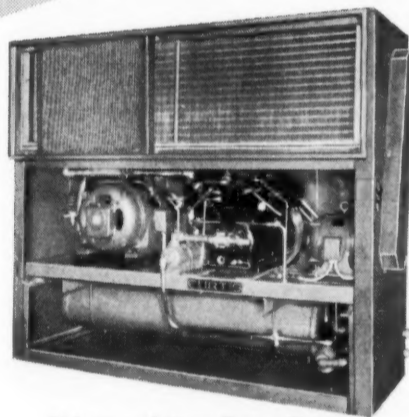
## For CURTIS AIR CONDITIONING

A vast volume of industrial and Government air conditioning work has become necessary due to America's War Effort. The industrial and processing fields are expanding at a time when your civilian market is reduced.

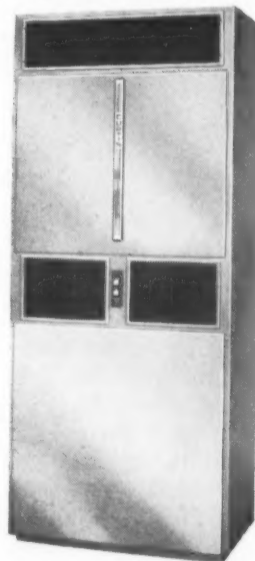
Industrial air conditioning is high priority business, often A-1-A. It is an essential part of many phases of today's all-out war production. Temperature control through air conditioning is required in many precision tool rooms; it is needed in many plants on 24-hour shifts to aid employee efficiency in drafting rooms, offices, etc.

The dependable Curtis line of Packaged and Remote Type Air Conditioning Units includes sizes from 3 to 15 tons. Curtis Units provide these advantages:

- ★ Low first cost—economical operation
- ★ Quick, easy installation
- ★ Units cool, dehumidify, filter, and circulate the air
- ★ Modern, streamlined appearance
- ★ Models for every requirement
- ★ Adaptable for heating if desired

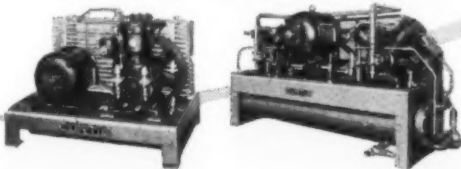


7½, 10, and 15 ton Remote Type Air Conditioning Units



3 and 5 ton Packaged Type Air Conditioning Units

- The Curtis line includes refrigerating machines from ¼ to 30 tons capacity. Every Curtis product is backed by 88 years of successful manufacturing experience, 24 years of building fine refrigeration equipment.



## CURTIS REFRIGERATING MACHINE DIVISION of Curtis Manufacturing Company

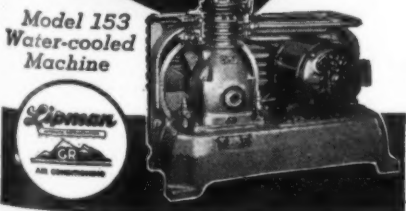


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## The Machine For Your Next Job...

If it's a refrigeration job...no matter how big or how small...we can supply Lipman equipment to fit the specifications. Let us work with you.

GENERAL REFRIGERATION DIVISION  
Yates-American Machine Co.  
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## What to Check When Electric Motor Does Not Start

### Motor Troubles & Their Correction

*Editor's Note: Following is part of a section on servicing motors, in a series of articles on motor construction and operation.*

By R. A. Fuller,  
Industrial Engineering Dept.,  
General Electric Co.

#### Complaint - -

#### D. Motor Does Not Come Up to Full Speed

##### CAUSES

1. Low voltage at motor terminals during starting (See Section A 9).
2. Excessive load (See Section A 3).
3. Incorrect voltage or frequency for motor used (See Section B 3).
4. Loose connection (See Section B 5).
5. Incorrect connection of motor terminals (See Section A 10).
6. Short circuit in stator winding (See Section A 6).

(Note: The following apply to all motors equipped with brushes—particularly single phase motors.)

7. Incorrect brush setting (See Section B 13).
8. Dirty or rough commutator (See Section C 2, C 4, and the following).
9. Brushes worn too short (See Section C 5 and the following).
10. Brushes sticking (See Section C 6 and the following).
11. Weak brush springs (See Section B 12 and the following).

(Note: The following applies to Complaints No. 8, 9, 11, and 11 above.)

"Dirty or rough commutator; brushes worn too short; brushes sticking; or weak brush springs" cause faulty contact between the brush and the commutator. The extra resistance of this faulty contact reduces the current flow and thus reduces the output of the motor enough so that it may be unable to bring the load up to full speed.

(Note: The following apply only to brush raising types of single phase motors.)

12. Brush raising mechanism work or sticks.

"Brush raising mechanism worn or sticks" may be experienced on brush raising types of single phase motors. Inspection of the mechanism, preferably with the rotor removed from the motor, should lead to the cause of the trouble. Operate the mechanism by hand and observe its operation for any faulty conditions. If worn parts are suspected, take the mechanism apart and inspect for wear. After the cause of the trouble is located, the corrective action should be determined by the service man's good judgment. In general it is recommended that patching up of worn parts be avoided. These mechanisms have pretty severe duty and a new replacement part will be more certain to give good service.

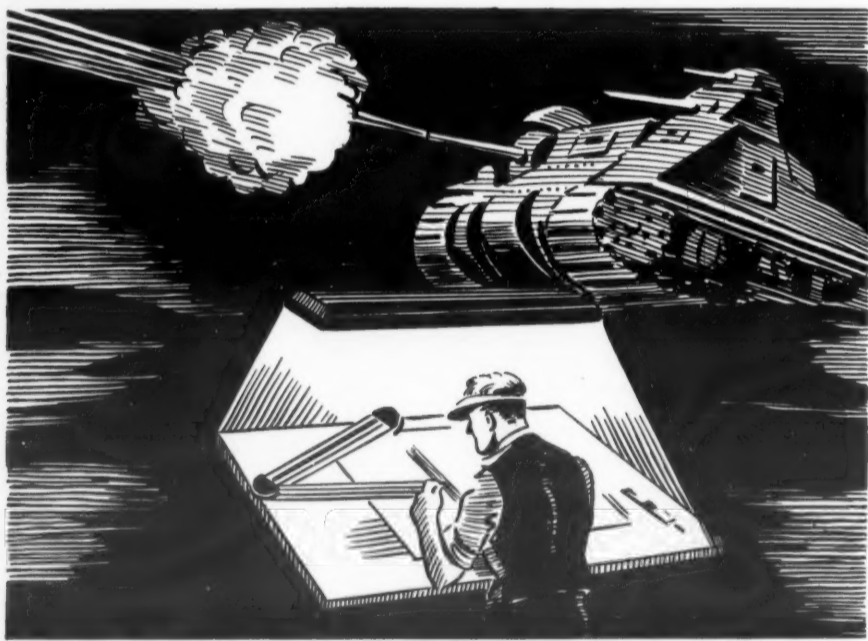
13. Short circuiting device failure (See Section B 16).

(Note: The following applies only to capacitor motors.)

14. Centrifugal switch fails to open (See Section B 15).

#### E. Motor Is Burned Out

Faulty overload protection—The overload protection has failed to trip out. In addition there is some condition that has caused an overload. This should be located and corrected. See complaint causes on "Motor Does Not Start" and "Overload Trips Out."



## After the Last Shot Is Fired . .

**D**URING the emergency, Tecumseh Products Company is committed to two lines of endeavor, both contributing to the war effort. First: Commercial refrigerating units, essential for the military forces and for vital civilian needs are being manufactured, and we are promptly filling these preference rated orders and expect to continue to do so for the duration.

Second: Our production is constantly being increased on vital munitions and war material, and in recognition of these efforts we were awarded the Navy E.

But—after the last shot is fired, our country has a serious responsibility. We will be the only major world power in a position to rapidly resume peacetime production. Chieftain is looking ahead to that time. New ideas that were on the drafting board or on field trial before Pearl Harbor, as well as the present lines of hermetic and conventional units, will be ready to meet this new and expanded market.

**TECUMSEH PRODUCTS COMPANY • TECUMSEH MICHIGAN**



## What's New

Descriptions of some of the brand new items for the refrigeration and air conditioning, and major appliance fields.

### Honeywell Markets High Capacity Thermostat

MINNEAPOLIS — Minneapolis-Honeywell Regulator Co. here has developed a new high capacity thermostat for broad usage in air conditioning and cooling installation. This electric thermostat, the TA42, can be used wherever two or three-wire line voltage control is required, company officials report.

Its horizontal design affords maximum air circulation about the element and insures against possible harmful effects of electrical contact heat. Movement of the sensitive, vapor-filled bellows is transmitted to the QS611 Con-Tac-Tor Snapswitch. Because this switch is non-magnetic, it is not affected by vibration.

The new TA42 is applicable to motor-driven unit heaters, water circulators, coal blowers, motorized valves, and motorized dampers. It can also be used with a magnetic starter on large or polyphase motors.

Other standard features include: (1) Removable adjustable knob which also locks the cover to prevent tampering. (2) Bakelite base that is both an electrical and a thermal insulator. (3) The dead front which eliminates shocks and short circuits. (4) Fully enclosed design to protect it from dirt.

### Airtemp Develops Duct Using Little Metal

DAYTON, Ohio—Formdux, ductwork which is said to use only 20% of the metal usually required in ducts for forced-air furnaces, has been introduced by Airtemp division, Chrysler Corp.

Airtemp is already in volume production on Formdux and will supply builders and heating contractors through jobbers or direct until jobbers are supplied, officials declare.

Formdux sheets are shipped flat and require minimum storage space. They have high tensile strength and are completely fireproof, thus may even be used in forming plenum chambers. The sheets have a high insulating quality and a low resistance to the flow of air. They are strong and impervious to moisture.

Airtemp engineers say Formdux is economical to install and can be put together with airtight connections by sheet metal workers. Another advantage claimed is the absence of the expansion and contraction noises usually associated with sheet metal.

### Phosphate Glass Product Helps Prevent Scale

PITTSBURGH—To meet the need for a slowly soluble form of phosphate glass to prevent scale and to control corrosion in air conditioning units, mechanical washing equipment, and water systems in small buildings and private homes, Calgon, Inc. has introduced a new product called "Micromet," the company announced.

It is believed that Micromet can be readily administered in the minute quantities required in the treatment of small systems to prevent scale formation from hard, high-bicarbonate water, "red water" caused by precipitation of dissolved iron from well water, and to control corrosion induced by soft, corrosive water.

Micromet is a glassy sodium phosphate made of food-grade material to a closely controlled composition, then carefully crushed and sized. When placed in cold water it dissolves at the rate of 25% per month, it is said. The usual feed necessary is one pound to each 24,000 gallons of water.

In air conditioning units, Micromet may be fed by means of a shallow screen basket placed in the sump of the unit or by a simple pot-type feeder of standard galvanized or black iron pipe in the feed water line.

The new product will be distributed in 1, 1½, and 5 pound units. Calgon, Inc. will furnish a 12-page booklet explaining Micromet installation and treatment to distributors, dealers, and equipment manufacturers upon request.

### Owens-Corning Plans Drive On Air Filter Sales

TOLEDO—To increase distributor and dealer business this summer in air filter replacements and furnace overhauling, Owens-Corning Fiberglas Corp. here is offering a series of free selling aids as the initial shot in the 1942 advertising campaign for Fiberglas Dust-Stop Air Filters.

Aimed to offset the profit loss from lack of new heating and air conditioning equipment by developing the potential multi-million dollar residential and commercial air filter replacement market, these promotional aids include a portfolio for use by distributors and their salesmen in their contacts with dealers.

Imprinted with the distributor's name and address, the portfolio tells the dealer about the Dust-Stop campaign.

Dealer folders and follow-up post cards to be mailed to householders emphasize that now is the time to change filters to make sure that blower fans will circulate cool, clean air during the summer, and that now is also the time for a complete furnace inspection and overhauling.

Two folders are offered dealers for mailing to owners of commercial installations describing means of assuring efficient summer cooling and ventilating and stressing the benefits of changing filters. Both folders and post cards are imprinted with the sender's name, address, and telephone number.

### Niagara Develops Units For -50° Cold Rooms

BUFFALO—Cold room air conditioners providing constant temperature as low as -50° to -80° F. are being made available by Niagara Blower Co. for manufacturers required to test or normalize parts, materials, and machinery at such temperatures, and for experimental laboratories.

This new equipment using Niagara "no frost liquid" (no brine) is claimed to give constant operation without interruption or loss of capacity by reason of ice or frost forming on cooler coils or because of corrosion of the equipment from contact with brine or calcium. It consists of coolers operated in stages, the first stage reducing to temperature just above the freezing point of water and removing humidity; the second stage using the Niagara "no frost" method to remove the balance of the moisture, and the third stage producing and holding the required final temperature.

### Rubber Plastic Used to Repair Rubber Belts

CINCINNATI—A fraction of an ounce of rubber may keep equipment containing hundreds of pounds of this scarce substance on the firing line, Joe J. Marx, president of So-Lo

Works here, recently testified to the Rubber Products Branch of the War Production Board.

A new rubber plastic product containing a small proportion of crude rubber is being used by defense plants on conveyor belts, pulleys, and other rubber equipment to keep production lines going, according to Mr. Marx, whose company manufactures the product.

When spread on a conveyor belt, this putty-like substance repairs holes and worn spots, making it possible for the plant to keep producing without loss of time or replacement.

### REFRIGERATION CONTACT MEN IN DEFENSE INDUSTRIES

WE WILL pay substantial salary and bonus, for contacts resulting in the sale of Industrial or Commercial refrigeration or Air Conditioning equipment of any type, any size, to defense construction or war industries. Position permanent, not dependent upon present War situation. We are one of America's largest distributors in this field with excellent financial rating. Box 500, EQUITY ADVERTISING AGENCY, INC., 113 West 42nd St., New York City.

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REGULATOR DIVISION • DETROIT

**SAVE STEEL FOR VICTORY**

RETURN EMPTY CYLINDERS

★ Steel is precious. Every pound counts in filling vital Victory needs. Little can be allocated now for new refrigerant cylinders. You can help Ansul and all manufacturers by returning empty cylinders at once . . . by keeping every cylinder at work. In doing this, you help the Nation, help yourself, and help your customers. Keep every cylinder on the job—all the time!

**ANSUL**

ANSUL CHEMICAL COMPANY • MARINETTE, WISCONSIN  
HELP YOUR JOBBER HELP US KEEP 'EM ROLLING!

# The Case For the Continued Production of Commercial Refrigeration

## Storage of Food In Bulk Can Save Metals; 4-Point Program of Policy Is Urged

**Editor's Note:** In a letter accompanying this article, Mr. Stelpflug writes: "Our particular concern has been given a great quantity of war orders and, therefore, we are not seriously affected by the limitation order; but our interest in the entire food distribution field is such that we cannot stand by and permit a breakdown in the refrigeration system which appears to be an absolute essential if the people of this country are to be assured adequate and proper food."

By W. J. Stelpflug, Vice President, Allied Store Utilities Co.

Limitation Order L-38 has for the first time brought us face to face with realities in the commercial refrigeration field so let us analyze our position in the field to decide honestly how important or unimportant we really are.

From a land of excesses we have suddenly been dropped into a world of shortages. We are not necessarily short of the raw materials but somewhere there is an inability to bring enough of all types of raw materials from the source to the point where they are to be utilized for all war and civilian purposes. The difficulty in a given instance may be our inability to mine the materials fast enough, to transport all of the raw or finished products, or to supply the machinery for processing the raw materials.

It makes little difference what the limiting factor is so long as it is true that not enough of the materials can be used to meet all purposes for so long as this condition exists the needs for the prosecution of the war come first.

In curtailing the use of critical materials the WPB has issued two types of orders; namely, freeze orders and limitation orders.

Freeze orders are intended to stop all use of materials covered by a specific order for non-essential purposes and to convert organized mass production facilities wholly to war purposes.

Limitation orders are intended to cut out the luxury factors in industries considered more or less essential to direct prosecution of the war and the maintenance of health and morale of civilian populations in this country and among our Allies.

Food is obviously as essential as our tanks, guns, or airplanes because without it we cannot produce the implements of war nor use them.

Let us see just what part we play in the food program and how far curtailment of our products can go before our food supply becomes affected.

It has been pointed out that people existed before mechanical refrigeration came into being and that is true. So perhaps it is well to start with the picture of food protection, preservation, and distribution in the era prior to the mechanical age and compare this earlier food situation with the present one.

### 'Living Off the Land'

Only 40 years ago most people in the United States lived on farms or in small towns with a majority of the families having a vegetable garden and with many of them, even in so-called cities, having a cow and chickens and even an orchard. Most food stuffs were grown and consumed locally and only beef and a few items such as apples, potatoes, and oranges were distributed in anything like the manner we know today. Milk and butter were of the home variety. People living in towns gathered eggs from their chickens or bought them from farmers.

In those days the greater part of what we know as perishable food today was produced in small lots and consumed in the area grown. Few people in those days ate in restaurants.

Processing of foods in the pre-mechanical age was largely of the home variety. Each family did its own canning of fruits and vegetables. Most families dried fruits and vegetables. In almost every cellar or cave was to be found big jars of salted down pork products. Smoked sausages of different kinds were kept in the smoke house. Meat was killed and consumed as promptly as possible, and if one family killed and had an excess it was sold to neighbors.

In the northern states meat was carried in a frozen state through the

winter months. Although large herds of beef were raised in the West and Southwest and shipped or driven to central points for slaughter and distribution, the total tonnage involved as compared with the home processed variety of all perishable foods was small.

About the only fresh varieties of fruits and vegetables that were carried through the winter were kept in cellars, caves, or buried in the ground, and only a few such items as cabbage, carrots, turnips, pumpkins, and apples could be so handled. The percentage of loss on perishable products carried through the winter was very great.

Prior to the growth of our present complex system of production and distribution of foods no great burden was placed on transportation for the handling of same. Some iced refrigerated cars were used but these were relatively few. The refrigeration problem as a whole was simple for each town and city had its ice houses. Some of the ice was produced artificially but much of it was cut from frozen lakes with special ice cutting equipment. Often the ice supply ran out in a given town or city between ice seasons and when this happened meat markets shut down until another supply could be secured.

Food retail establishments of 40 years ago were quite different from today for few canned vegetables or fruits were carried and only a few fresh vegetables or fruits could be found in any food store throughout the year. In addition to the so-called staples most food stores of those days carried a considerable variety of dehydrated fruits and vegetables.

Few stores in those days carried such items as butter except that purchased direct from farmers in small lots and the same applied to eggs. Meat was about the only perishable item to be found in all towns small or large, but that was home killed in most cases and sausages were made in the shop where sold. Distribution of meats by packers was pretty much confined to cities.

With the coming of the mechanical age people began to move from the farms to congregate around production centers and with improved transportation facilities and mechanical refrigeration came a change in production, processing, and distribution of practically all kinds of so-called perishable foods. People acquired the restaurant and delicatessen habit.

With the machine age, rapid transportation and the movement of people from the country to the cities the home garden gave way to mass production on truck farms, dairy farms, big scale orchards, poultry farms, and other specialized units. The entire picture of processing and distributing of food products changed. In this new age the big bulk of all perishable foods had to be handled by railroad and trucks for it was all cleared through centralized canneries, packing houses, or wholesalers and re-shipped through the complex distributing channels which we know today.

### How Times Have Changed

The change which has come about in the production, processing, and distribution of so-called perishable foods could not be except for mechanical refrigeration. Refrigerated railroad cars and trucks are required to move all of these perishable products from the point where they are grown to the point where they are processed. Mechanical refrigeration is required to handle most of the products except that which is canned or dehydrated from the point where it is processed back to the channels of wholesale and retail distribution and on to the point of ultimate consumption.

Hundreds of thousands of refrigerated units are in use in the essential care of the perishable products involved.

It has been suggested that a great deal of our mechanical refrigeration is a luxury and that we might go back to the old methods of handling foods and still maintain a decent standard of living. It is obvious that this suggestion was made without due thought to the fact that a very small percentage of our population today produces a large part of our food and, therefore, we cannot escape the necessity for production in mass nor for distributing through the present channels.

The average housewife would not be able to secure perishable foods for processing without the use of our mechanical refrigerating facilities for transporting and storing. If she could secure the products, there is a grave question as to whether or not she could secure the jars, jar caps, and rubbers required to complete the job.

A short time back Secretary of Agriculture Wickard made the statement that shortly the United States will be called on to feed two billion people. This means that most of the food which we can produce of a canned, dehydrated, or frozen variety will have to be shipped abroad. Even now a great part of the food of the varieties named are being shipped under the Lease-Lend Act.

These facts are undoubtedly the reasons behind the promotional campaign of the Agricultural Department and the Office of Defense Health and Welfare Services to encourage a greater consumption at home of fresh perishable foods such as vegetables, fruits, milk, fish, eggs, and meats.

### Other Means Take Metals

As time goes on there will be less and less canned fruits and vegetables and even dehydrated fruits and vegetables available for home consumption. If this be true, the need for refrigerated storage space for the preservation and distribution of food stuffs to the people of the United States will be increased rather than decreased. A careful analysis of the facts will prove that fewer critical materials will be required to handle a million tons of foods in bulk through refrigerated storage units than will be true with any method of processing.

Of the commercial refrigeration units now in use for the handling of perishables thousands require replacement each year due to rusting out of coils, wearing out of machines, rotting out of floors and walls, termite destruction, etc.

It is the opinion of many people that refrigerated cases are merely intended to increase sales. The fact is that there is no type of refrigerated case, reach-in box, cooler, or storage plant which is not truly used as a part of the storage facilities required to move foods between the point of growth and the point of consumption.

So-called display cases are used 24-hours a day for storage purposes and to this extent reduce the required storage space in walk-in boxes of one type or another. Storage cases are used merely because they speed up the handling of products in retail stores and thereby eliminate unnecessary man power which is freed for other useful purposes.

Only recently a food merchant in St. Louis called me at home at night to appeal frantically for help in getting his refrigerating machines repaired at once because refrigeration was down on his cases and he had no room in his walk-in refrigerators for the perishable products from the cases. Such calls are daily occurrences to all refrigeration service men.

Along with criticism of other commercial refrigerator units the so-called locker storage plants for frozen foods have been included. This unit is one which comes nearer to making it possible to go back to the simple method of handling foods of 40 years ago than does any other, for in this type of plant local products can be processed without packaging and kept indefinitely with no loss of vitamins or freshness.

A refrigerated locker storage plant for frozen foods is probably the least wasteful of materials of all known methods of processing or of distribution. The Missouri papers of May 27, 1942 carry a story of large

quantities of strawberries rotting in the fields for lack of labor, crates, and transportation facilities to handle them. These products could have been saved through local freezing and storage in locker plants.

As with everything else, we have always had a surplus of food in this country but we have learned with other things how quickly the picture can change when we attempt to supply not only our own needs but those of our Allies as well. To needlessly interfere with the necessary protection of perishable foods left to people of the United States can be nothing short of blindness. Necessary materials must be made available for construction and maintenance of the equipment needed to properly preserve and distribute this food.

### The 4-Point Program

All of us must do our share to help win this war. We must all unselfishly give up the non-essential things in order that the essential needs of our Allied Armies and civilian populations may be served. We feel that we in this industry have a rare opportunity to serve our country in helping to make sure that the mechanical refrigeration system so important to the preservation and distribution of food be kept intact. In this connection we have a four-fold program.

1. To produce refrigerator and refrigeration requirements of our armed forces and our Allies and to fit our civilian production

into this scheme to hold our labor and machine facilities together in gaps between war orders.

2. To see that all commercial refrigeration equipment now in use is properly serviced so that its efficiency may be fully utilized for the longest possible period of time.

3. To make sure that all usable idle commercial refrigeration equipment is put to use where it is needed with the least necessary use of essential materials in re-conditioning.

4. To see that new equipment is provided over and above all other available commercial refrigeration equipment required to properly preserve and handle all perishable foods. This new equipment to be provided with a saving of materials over that required for the handling or distribution in any other known way.

Truly we of the refrigeration industry have an important part in this war program and in spite of the difficulties of limitation orders or other obstacles it is up to us to make our sacrifices and carry through.

### Detroit Agency to Handle Howell Motors Advertising

HOWELL, Mich.—Advertising of Howell Electric Motors Co., here will be handled by Brooke, Smith, French & Dorrance, Inc., Detroit and New York agency.



Just a lone, forgotten empty

There is sadness in his song;

For he's growing old and dusty—

These are times when this is wrong!

He is willing and he's ready

To help his Uncle Sam

Keep shipments moving steady

For the Country's War Demand.

Don't hold him there in hiding;

Let's put him in the fight

And keep this empty riding

For Victory and Right.

Kind Sir! pray heed this warning;

Forget that old excuse.

Ere dawns tomorrow's morning

PLEASE turn that empty loose!



"VIRGINIA" REFRIGERANTS  
AGENTS FOR KINETIC'S "FREON-12"

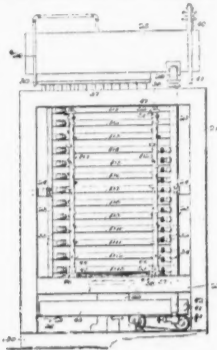
**VIRGINIA SMELTING CO.**  
WEST NORFOLK, VIRGINIA



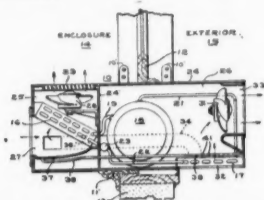
## PATENTS

Weeks of May 26 &  
June 2

2,283,923. REFRIGERATING APPARATUS. Bicknell Hall, Boston, Mass., assignor to General Foods Corp., New York, N. Y., a corporation of Delaware. Application April 23, 1936, Serial No. 75,919. 3 Claims. (Cl. 62-140.)



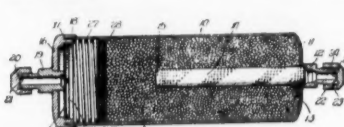
2,283,928. AIR CONDITIONING APPARATUS. Leroy G. Huggins, Mansfield, Ohio, assignor to Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., a corporation of Pennsylvania. Application April 23, 1936, Serial No. 75,919. 3 Claims. (Cl. 62-140.)



1. An air conditioner unit suitable for conditioning the air of a room comprising two compartments, a refrigeration apparatus having a heat absorbing portion, a heat dissipating portion, and a motor-

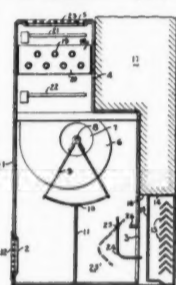
compressor, the heat absorbing portion being in one compartment, and the heat dissipating portion and the motor-compressor being in the other compartment, said unit being adapted to be held in such position with respect to an opening in the wall of an enclosure that the heat absorbing portion is on the inside of the wall, the heat dissipating portion is on the outside of the wall, and the motor-compressor is disposed substantially in the plane of said wall intermediate said heat-absorbing and heat-dissipating portions, and means for forcibly circulating air from the enclosure over said heat absorbing portion to condition the air, said unit being provided with means for engaging an edge of said opening for holding said unit in said position.

2,283,989. METHOD OF CHARGING AND CONDITIONING DEHYDRATORS. Guy J. Henry, Chicago, Ill. Application June 4, 1938, Serial No. 211,849. 7 Claims. (Cl. 210-134.)



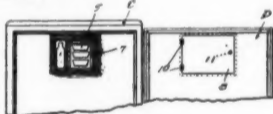
1. The method of preparing a dehydrator for use, which comprises loading a dehydrator casing with granular dehydrating material, subjecting the dehydrating material to the action of a vacuum after being loaded into the dehydrator casing, following the vacuum treatment by subjecting the dehydrating material to the action of air under pressure, and closing the casing to entrap the air under superatmospheric pressure and to maintain the dehydrating material under such condition before use.

2,284,161. AIR CONDITIONING APPARATUS. John McElgin, Philadelphia, Pa., assignor to John J. Nesbitt, Inc., Philadelphia, Pa., a corporation of Pennsylvania. Application June 9, 1939, Serial No. 278,217. 3 Claims. (Cl. 98-38.)



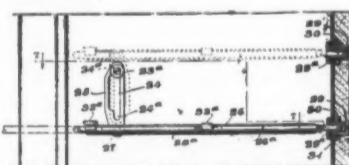
1. A ventilating unit comprising a casing having a recirculated air inlet, an outdoor air inlet, and a mixed air outlet, a passageway leading from said outdoor air inlet into said unit, a damper for controlling the proportion of outdoor air with respect to recirculated air, and means for materially reducing the size of the outdoor air inlet passageway in accordance with instantaneous increases in the velocity pressure of the outdoor air, said means comprising a baffle of L-shaped cross section pivoted along one edge of one of the legs in order to swing in response to wind pressure and adapted to assume such a position that the size of the outdoor air inlet passageway is materially reduced in accordance with increases of said velocity pressure.

2,284,293. REFRIGERATOR. Kenneth A. Mills, Memphis, Tenn. Application Feb. 13, 1940, Serial No. 318,772. 1 Claim. (Cl. 62-89.)



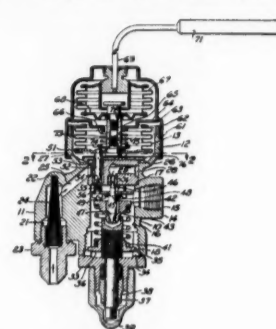
A refrigerator comprising a cabinet providing a food chamber having a door opening leading thereto, means for closing said opening including a supplemental door, a cooling unit supported within the food chamber and having one face open, said open face being closed when the supplemental door is closed, the edges of the cooling unit defining the open face thereof being formed to provide a continuous groove, and a gasket snugly fitted within such groove to provide a sealing medium for close contact with the supplemental door when closed.

2,284,339. REFRIGERATOR. Carl H. Nauert, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application Dec. 8, 1939, Serial No. 308,269. 9 Claims. (Cl. 312-156.)



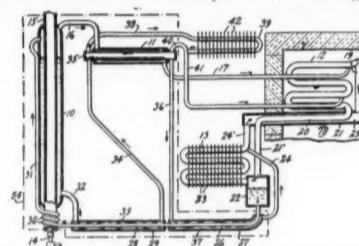
7. A refrigerator cabinet including vertical wall members, supports mounted on said wall members, shelf hangers mounted on the said supports in pivotal relation thereto, a shelf pivotally connected to said hangers, said hangers having a slidable connection with said supports, the slidable and pivotal connection of said hangers with respect to said supports providing adjustment of the shelves to different distances from said supports.

2,284,496. REFRIGERATION EXPANSION VALVE. George W. Smith and James A. Smith, Lyons, N. Y., assignors to Kenmore Machine Products, Inc., Lyons, N. Y. Application Jan. 24, 1940, Serial No. 315,459. 9 Claims. (Cl. 236-92.)



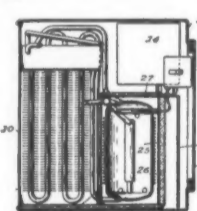
1. In a refrigerant expansion valve, a valve body formed with a valve-receiving portion, a cylindrical flange contiguous therewith and having a chamber formed therein, and an offset inlet passage portion, said valve-receiving portion being formed with a longitudinal bore communicating with said chamber, a valve disposed in the bore, spring means for actuating the valve, and closure means for closing the end of the bore and holding said spring and valve in operating position, a discharge portion formed in the valve body in communication with said bore, a separate insert disposed at the opposite end of the bore to divide the bore from said chamber, a sealing bellows secured within said chamber, a plurality of longitudinally disposed apertures formed in said insert, push pin members freely extending through said apertures and connecting said sealing bellows and said valve, a valve seat formed in said insert against which the valve may contact, a diagonal passage formed in the body and connecting said inlet passage portion and said bore at a portion thereof covered by said insert, said diagonal passage, as projected, extending beyond the end of said cylindrical flange, and a tortuous passage extending around said insert for connecting said diagonal passage and said valve seat.

2,284,691. REFRIGERATION. Per Paul Strandberg, Stockholm, Sweden, assignor to Platen-Munters Refrigerating System, Aktiebolag, Stockholm, Sweden, a corporation of Sweden. Application March 30, 1940, Serial No. 326,945. In Germany April 14, 1939. 15 Claims. (Cl. 62-119.5.)



1. An absorption refrigeration system including a generator, means to heat said generator to cause expulsion of refrigerant vapor from and thereby weaken absorption liquid therein, means for conducting weakened absorption liquid from said generator in the presence of inert gas to lower the vapor pressure of the refrigerant fluid and thereby permit further expulsion of refrigerant vapor from and further weakening of the absorption liquid, and a condenser which receives inert gas and refrigerant vapor from said means and in which the refrigerant vapor is condensed to liquid.

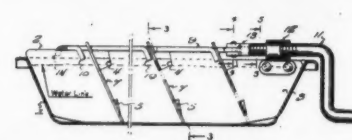
2,284,791. ABSORPTION REFRIGERATING APPARATUS. Edmund E. Allyn, Cleveland, Ohio, assignor to Allyn Laboratories, Inc., Cleveland, Ohio. Original application Jan. 3, 1938, Serial No. 183,042. Divided and this application Sept. 21, 1939, Serial No. 295,972. 4 Claims. (Cl. 62-118.)



1. In an intermittent absorption refrigeration apparatus, a cabinet, an insulated food compartment secured in the upper front section thereof, a vertical heat flue arranged between the rear of said food compartment and the rear wall of said cabinet absorption refrigeration mechanism including an intermittently heated generator-absorber, condenser unit and evaporator positioned in said cabinet, the said generator-absorber being positioned directly below and in spaced relation to said food compartment, a baffle extending from adjacent the base of said cabinet upwardly and around the portion of the generator-absorber nearest the said food compartment and joining said vertical heat flue, the said condensing unit being also positioned to the rear and adjacent the base of said cabinet directly beneath the lower end of said heat flue whereby heat from the generator-absorber ascending in said flue causes a draft of unheated air to pass over said condenser unit.

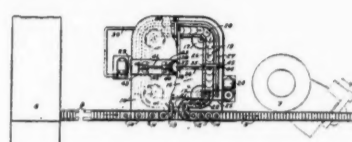
2,284,820. ICE CUBE RELEASE GRID. Earl W. Hough, Manitowoc, Wis., assignor to Aluminm Goods Mfg. Co., Manitowoc, Wis. Application March 17, 1941, Serial No. 383,776. 1 Claim. (Cl. 62-108.5.)

A grid for ice cube trays comprising, a longitudinal partition provided with spaced notches in its upper edge, transverse fins shiftable by said partition and having their upper ends located in said notches said ends being provided with



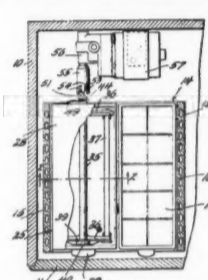
aligned openings adjacent their upper ends, a flat plate extending through said openings and supported upon the top edge of said partition, said plate being provided with pairs of depending fingers formed upon its longitudinal edges and straddling said partition for progressively engaging said fins, a notched depending lip formed on the rear end of said plate for straddling the upper edge of said partition to guide said plate thereon, and a threaded crank carried by said partition, and rotatably connecting with the forward end of said plate for longitudinally shifting the same.

2,284,875. BOTTLE COOLING UNIT. Archie E. Ladewig, Waukesha, Wis. Application July 19, 1940, Serial No. 346,298. 4 Claims. (Cl. 62-104.)



1. A bottle cooling unit comprising, a casing having therein a liquid basin and being provided with adjoining inlet and outlet guides associated with a common opening, a conveyor continuously operable within said casing to transport successive bottles in upright position from said inlet to said outlet guide, spray pipes disposed above said conveyor for spraying cooling liquid against the exteriors of the bottles, a pump for circulating liquid from said basin through said pipes, and a refrigerating coil for cooling the liquid in said basin.

2,284,907. REFRIGERATING APPARATUS. Bertram Y. Kinsey, Richmond, Va. Application Dec. 23, 1938, Serial No. 247,510. 8 Claims. (Cl. 62-114.)



1. In refrigerating apparatus for domestic use of the type provided with an ice tray receiving chambers having a front opening through which ice trays may be introduced, the combination with a dessert container for reception within said chamber, said container having flat external surfaces defining generally a rectangular parallelepiped and being open at the upper side to permit the introduction of a dessert mixture therein, said container having a substantially semi-cylindrical lower internal surface for agitating means supported in said container for rotation about a generally horizontal axis substantially coextensive with the axis of the said semi-cylindrical internal surface, and closure means for the open upper side of said container, said closure means being formed to afford an internal, substantially semi-cylindrical surface disposed in communication with the said semi-cylindrical surface of the container.

(Concluded on Page 15, Column 1)

## THE BUYER'S GUIDE



## IT'S IN THE CARDS

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finest possible service on  
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## HENRY

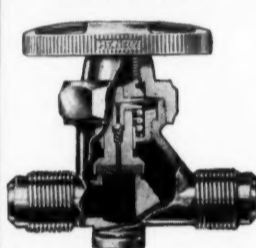
## Balanced-Action Diaphragm Packless Valve

The only packless valve that gives you 24 important features of design, construction and operation—all described in catalog No. 95. It's yours for the asking.

LEAK PROOF • PORTS IN LINE • LONGER LIFE • OVAL HAND WHEEL

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## TYPE 625



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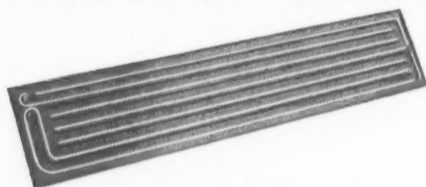
## STANGARD

## PRIME SURFACE Cold Plates

## FOR MAXIMUM EFFICIENT REFRIGERATION

★ FOR Locker Plants, Sharp Freezing, Ice Cream Cabinets, Hardening Rooms, Soda Fountains, Storage Rooms, Milk Coolers, Liquid Cooling, Food Counters and other similar uses.

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Specialists in the  
Manufacture of  
all types of  
COLD PLATES

Stangard facilities are contributing to the production of materials for our National Defense

Stangard-Dickerson Corp., 46-76 Oliver St., Newark, N. J.

60

FOR NEARLY YEARS... through two other victorious wars, Koch has served America and Americans. During this war Koch is working day and night, manufacturing fine refrigerators for Army, Navy and Marine use, for hospitals and institutions, for civilians engaged in the vital occupation of selling perishable foods. When this war has been won, Koch will continue to manufacture fine refrigerators... America's finest... for every commercial requirement.

SINCE 1883

KOCH

REFRIGERATORS, North Kansas City, Mo.

**KEROTEST**  
REFRIGERATION  
VALVES AND FITTINGS  
*Serve  
Enjoyment*  
KEROTEST  
MANUFACTURING CO.  
PITTSBURGH, PA.

For 1942—most complete range of styles and sizes—12 to 71.5 cu. ft.—in the industry. New modern styling—priced for real value.  
**Reach-in  
CABINETS**  
*Midwest*  
Mfg. Company  
GALESBURG, ILLINOIS

**PENN** BRASS & COPPER  
TUBING  
PENN BRASS & COPPER CO.  
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3 CATALOGS IN 1  
HERMETIC UNITS - COMPRESSORS - PARTS  
FRIGIDAIRE - KELVINATOR - NORGE - G-E  
Complete Line Refrigeration Parts - Tools - Supplies  
WRITE FOR YOUR COPY ON FOUR LETTERHEAD  
**SERVICE PARTS CO.**  
MELROSE PARK, ILLINOIS



## Victory Program 'Job For All' --Knighton

(Concluded from Page 1, Column 3) devote all our energy and resources in the service of humanity at its peace-time pursuits.

"Our obligation to conserve is not confined to the use of vital materials—but includes instruction and counsel to our users concerning the usage of our products to conserve electrical energy—particularly in those areas where rapidly expanding facilities for war production may require the rationing of electric power.

"The obligation of the refrigeration industry to our war program must be fulfilled. We now have the opportunity to do it on a voluntary basis—the way of our fore-fathers—the American way.

"This is our job—we, alone, can get it done. Resolve now to do your part—willingly, gladly, and to whatever extent your experience and ingenuity will permit. Don't feel that your contribution may be too small—don't believe that the 'other fellow' can get it done without your help—and above all don't pass this off as a meaningless gesture—as much to do about nothing.

"This obligation to conserve is part and parcel of our every day job—let's do it."

## Some Producers Asking Return of Old Parts

(Concluded from Page 1, Column 1) at full list price as the deposit price—no discount. We will send you an (—) form to cover the parts to be returned. After you have made the exchange, return the old part to us prepaid, accompanied by the pink copy of the (—) form as a packing slip to identify the return (from whom received, etc.). At the same time mail us the white copy of the (—) form to act as an advice of shipment. When it is received you will be given credit and our check:

"(1) Full credit if the part is covered by the warranty, or  
 "(2) Credit for the difference between the price of the part and the charge for repairing it, if it is repairable, or  
 "(3) Credit represented by your discount, if the part is not repairable and must be scrapped, disassembled, and melted up.

"We must reserve the right to ship a repaired part instead of a new unused part, but the repaired part will carry the same guarantee as a new, 'never-been-used' part."

## Survey Shows Laxity In Price Ceiling Postings

(Concluded from Page 1, Column 4) was no compliance whatever in 2,792 stores.

OPA officials said they did not expect any wide variation from the Philadelphia figures to show in similar surveys to be conducted in other cities.

For the educational drive here a large group of volunteer workers will be enlisted through the Civilian Defense Volunteer Office, Mr. Joseph stated.

## Plan Is Revealed For Foreseen Power Shortage

(Concluded from Page 1, Column 1) specific power regions in relation to their essential roles in war production, Mr. Krug explained the expected set-up. Each region would be able to supply a certain amount of power for industrial purposes, depending on its installed generating capacity, with the balance allocated to commercial and domestic consumers on a curtailed basis, although such curtailment would not extend through all regions.

He indicated that interconnections of power systems would be necessary in some cases to round out so-called "power pools." However, the 200 utility executives present at the conclave said they gathered from Mr. Krug's remarks that the power situation today is definitely better than had been expected a year ago.

Under the proposed order, it was ascertained, extensive construction of new power plants would be superceded by a policy of "pooling present resources" to conserve critical materials, such as copper, steel, and aluminum, for other critical war purposes.

## Base Prices Set Up For Refrigerators Made by Sunbeam

EVANSVILLE, Ind.—Base prices which will enable the Sunbeam Electric Mfg. Co. to compute the maximum prices it may charge in the sale of its domestic household refrigerators to persons who have obtained preference ratings from the War Production Board are established in Amendment No. 3 to Revised Price Schedule 102, announced by the OPA.

The company which never sold its products to distributors, until recently produced refrigerators solely for Sears, Roebuck & Co., for retail sale. As a result of this practice the company had no need for prices at the distributors level. Amendment No. 2 to Revised Price Schedule No. 102 (household mechanical refrigerators), however, established a formula in which the distributors prices formed the base for computing the maximum retail prices at which manufacturers may make sales.

The action may become effective June 15, 1942, and establishes the base prices at a level comparable with distributors prices previously approved by OPA for other manufacturers. These prices cover the company's cost of production and allow for a reasonable profit if the administrative expense per unit is reduced to that which existed in December, 1941.

The base prices established are:

Unit Model	Cabinet Model	\$
214020	41124	\$ 65.66
214040	41126	71.83
214041	41226	81.74
214042	41216	81.23
214150	41236	85.28
214150	41326	93.49
214150	41426	95.65
214070	41336	98.46
214072	41336	97.86
224650	42236	87.72
20500	4096	84.99
214160	41358	105.19
214161	41238	93.39
214162	41428	100.20
214162	41228	90.99
214171	41338	104.62

## Fittings Molded From 'Saran' Are Available

CHICAGO—Fittings molded from "Saran," the new thermoplastic, are now available for tubing sizes 1/8 inch to 3/4 inch O.D., reports the Acadia Synthetic Products division of the Western Felts Works, which also processes "Saran" tubing, pipe, rod, and sheet.

By means of these fittings it is now possible to set up a complete, chemically resistant piping system without the use of any metal.

These fittings are said to have a high tensile and bursting strength, are non-corroding and non-aging and, being also non-conductors of electricity, are able to prevent the formation of galvanic couples.

## Carrier Trains Its Field Personnel In War Work

(Concluded from Page 1, Column 2) dent and chairman of the War Products Committee, and John H. Holton, works manager and vice president.

Following the first sessions, the field engineers and construction men are spending their time in various plant departments and in detailed examination of factory facilities and of the operations of various types of production machines.

Vice President and Comptroller F. F. Hoyt is vice chairman of the War Products Committee. W. D. Graham is secretary. Other members are H. L. Laube, Development vice president, Earle D. Williams, and C. V. Fenn.

## B. W. Clark Calls Upon Utilities To 'Keep Dealers In the Business'

NEW YORK CITY—Calling upon the nation's utility firms to "put forth whatever effort it takes to keep electrical appliance dealers aggressively in business, giving all possible support and encouragement to their operations," B. W. Clark, vice president of Westinghouse Electric & Mfg. Co., pointed out here June 11 that a vast expansion of the household electrical appliance market will be necessary after the war if the utilities are to maintain present power load requirements.

Addressing the annual conference of the Edison Electric Institute, held at the Hotel Biltmore, Clark stressed the necessity of utility companies to prepare for peace, and to encourage larger domestic demands for service than ever before.

"Even with electric appliance manufacture now stopped until after the war," he said, "we are all busy with research, invention, and design. We are studying with utmost criticism the product of today, to make tomorrow's better in the point of efficiency, utility, and style. We are working to find new uses for electricity in the home. More money than ever is being spent on forward-looking developments. It is our fond hope that the post-war product will provide a new impetus to the uses of electricity in the home."

Pointing out that there are approximately 216,000,000 home electric appliances currently in use in the United States, consuming two-thirds of residential electric power, Clark added that the development of

maintenance and repair services to keep these appliances functioning as long as possible is one of the most important tasks facing the industry, and especially the utilities, because of their close association with local communities.

The Westinghouse executive referred to the appliances now in service as "a measure of the responsibility laid upon the whole electrical industry if we manufacturers, distributors, and dealers expect to do business again, and if the utilities would preserve their present revenue and would garner future home load which they must have."

Emphasizing the importance of utilities lending all possible aid to dealers in their efforts to stay in business during the trying war period, Clark said that "all of this sums up to perhaps the most important problem in customer relations that the utility has to face—protection of existing load and preparation for future load building."

After the war, he declared, "the electrical load now being taken up by war industries will taper off sharply. It must be picked up—and what is half as certain as that it can best be picked up through a vast expansion of the residential market?"

Clark envisioned a post-war market for "literally millions of existing appliances which will then be worn out or ineffective by comparison with modern standards. A big market will be waiting both for replacement and for those needs which cannot now be met."

# The Bush Bulletin

THE BULLETIN WITHOUT THE "BULL"

SURE WE'RE BUILDING BUSH COOLING AND AIR CONDITIONING UNITS FOR THE ARMY, NAVY, AIR CORPS AND MERCHANT MARINE, BUT.... WE'VE EXPANDED OUR CAPACITY TO TAKE CARE OF YOU, TOO.... WHERE DO YOU GET ORDERS? BOY, THAT'S AN EASY ONE! EVERY WAR PLANT, SHIPYARD, HOSPITAL, ARMY CANTONMENT AND NAVAL BASE IN YOUR TERRITORY IS A PROSPECT THEY GET THE PRIORITIES.... YOU GET THE BUSINESS ONLY YOU HAVE TO GO AFTER IT! PENGUIN PETE

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**Pulmosan**  
**No. 1600 FUMEGARD**

1. High Safety in all refrigerant fumes.
2. Greater working freedom on the job.
3. Long, efficient, low-cost service.

On a feature-for-feature, dollar-for-dollar basis, the No. 1600 Fumegard is the finest face mask ever offered refrigeration men. Its compact design, husky rubber face piece, large, shatter-proof, non-fogging lenses, airtight fit, exhalation valve, scientific absorbents... all assure highest working safety and comfort. Furnished complete in carrying case, with extra canister. Order one today.

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